Rock Products

THE INDUSTRY'S RECOGNIZED AUTHORITY

JUNE · 1958

You...
depreciation
and taxes

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Underground...
mining a snow-white silica

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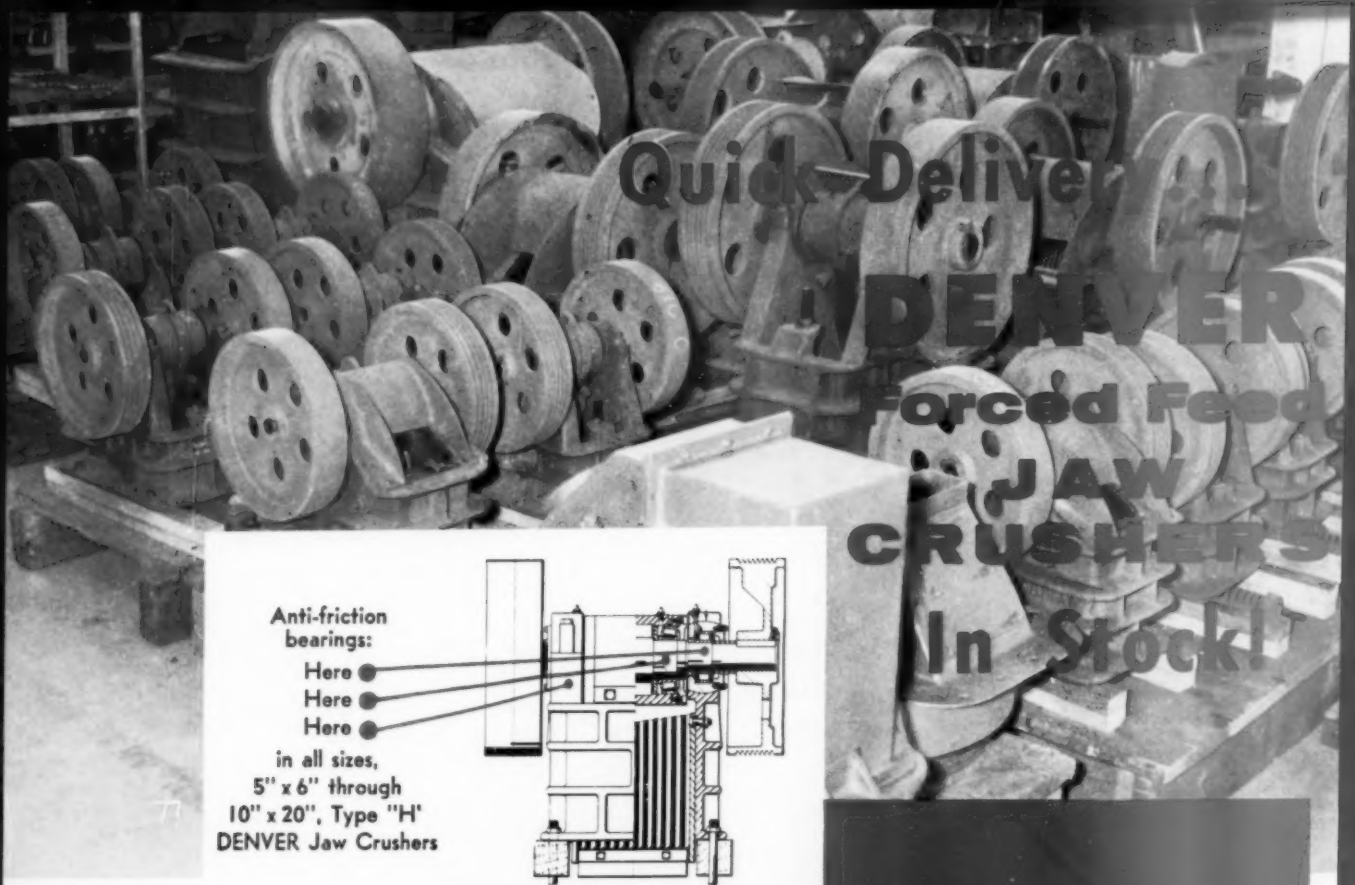
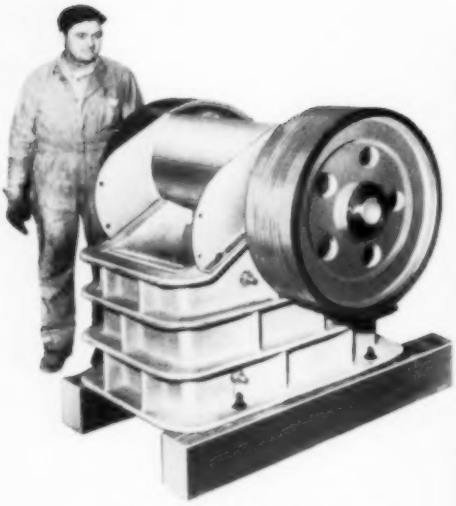


Quick-Deliver DENVER Forced Feed JAW CRUSHERS In Stock!

in all sizes,
5" x 6" through
10" x 20", Type "H"
DENVER Jaw Crushers



Shipment from stock in sizes 5"x 6", 8"x 10", 10"x 16" and 10"x 20". Other sizes to 36" x 48" are available.

Dealer Inquiries Invited

To provide the quickest possible delivery, DENVER Equipment Company maintains a complete stock of all sizes from 5"x 6" to 10"x 20" DENVER Forced Feed Jaw Crushers in Colorado Springs, Colo. Also, dealer stocks in many parts of the country.

A telephone call brings action to solve your size reduction problem. Recommendations, specifications, prices on request.

Now—Roller Bearings Throughout... for Long Life, Low Maintenance Cost

- Anti-friction roller bearings in side frame and bumper. Crusher runs smoother, bearings last longer, maintenance costs reduced.
- Side bearings in carrier permits bumper removal without exposing bearings to dirt.
- Side bearings on 10"x 16" and 10" by 20" sizes set in ball and socket type mounting for perfect self-alignment.
- Reinforced cast steel frame ends breakage.
- Manganese steel jaw and cheek plates for extra long service.
- Jaw plates reversible for long service, low maintenance costs.
- Pressure grease lubrication and labyrinth dust seals.

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Complete Mill Equipment

The firm that makes its friends happy. Sells, services and maintains

DENVER EQUIPMENT COMPANY

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B.F.Goodrich

Punching a 3-mile hole through a granite mountain

B. F. Goodrich improvements in rubber brought extra savings

Problem: That picture was taken inside a mountain where men and machines are digging a tunnel for a power project. As fast as the sharp, jagged rocks—some of them boulders six feet wide—are blasted out, they're dumped on a conveyor belt and carried to mine cars. But the constant smash of heavy rock soon pounded the conveyor belt to death.

What was done: The project engineer chose a B.F.Goodrich Nyfil cord mucker belt to replace the ruined belt. This belt is designed to stand heavy impact. Nyfil fabric, made of chemically produced fiber, at the center of the belt gives it strength without extra weight. Cords running lengthwise at top and bottom of belt are surrounded by rubber. There are no cross threads binding them together, so they are free to give on impact, with rubber taking the shock.

For extra protection against impact, B.F.Goodrich used its patented *Transcord breaker*, an extra layer of parallel cords in rubber placed across the belt width and around the edges. It increases adhesion of cover to carcass by 50%, and prevents gouges and cuts from splitting the belt cover, keeps cover from tearing away from carcass of the belt under severe impact.

Savings: The B.F.Goodrich belt has lasted six months, is still going strong. While it cost nearly half again as much as the belt it replaced, the contractor says it's already paid off by giving twice the service, without costly shutdowns for repairs.

Where to buy: Your B.F.Goodrich distributor has full information on the conveyor belt described here. And, as a factory-trained specialist in rubber products, he can answer your questions about *all* the rubber products B.F.Goodrich makes for industry. *B.F.Goodrich Industrial Products Company, Department M-343, Akron 18, Ohio.*

B.F.Goodrich *industrial products*

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Enter 1235 on Reader Card

Complete Mill Equipment

JUNE 1958

FEATURES

Depreciation . . . you . . . and the tax boys • *Joseph N. Bell* 70
Here's what you as a producer can do about depreciation—one of the most urgent problems facing the rock products industry today

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The extensive research work done by Calaveras Cement Co. shows kiln burning can be automatically regulated. Here's how it's done

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Ohio Gravel Co.'s indirect approach sells gravel by pushing community improvement, schools, roads . . . and it works

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LOS ANGELES—1901 W. 8th St., Los Angeles 57, Calif., Tel. Dunkirk 8-4151.
FOREIGN—England—Harold F. Charles, Managing Director, Maclean-Hunter Ltd., Wellington House, 125 Strand, London, W. C. 2.
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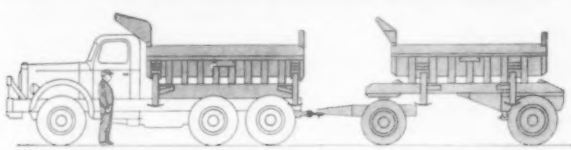
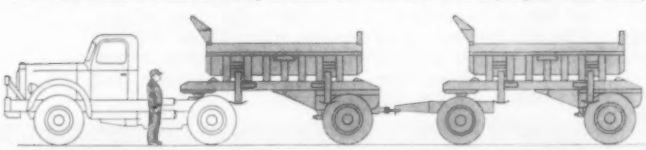
the big, new money saver is tandem hauling

two big payloads one power plant, one driver

TWO TYPICAL EASTON TANDEM RIGS



Above: Truck with back mounted body in combination with a full trailer (dolly and semi-trailer)



Above: Tractor semi-trailer in combination with a full trailer (dolly and semi-trailer)

EASTON TANDEMS may be purchased as complete new equipment, or converted by rigging an extra semi-trailer to single EASTON truck body or semi-trailer units now in service. Capacities range from 28 to 72 tons, or larger. For complete information write, wire or telephone (EASTON 3-4221).

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B-1079

New Tandems Save $100,000

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A typical report, coming from a quarry where nine EASTON tandems are in use, shows savings up to $100,000 a year. Before the changeover this quarry used single EASTON semi-trailer units hauling stone from shovel to crusher. In 1955 the quarry purchased an experimental EASTON tandem unit. In 1956 three more were added. The quarry now has nine EASTON tandems in operation, and a tenth in reserve. Tandems at this quarry combine EASTON semi-trailers with full trailers (EASTON dollies and semi-trailers).

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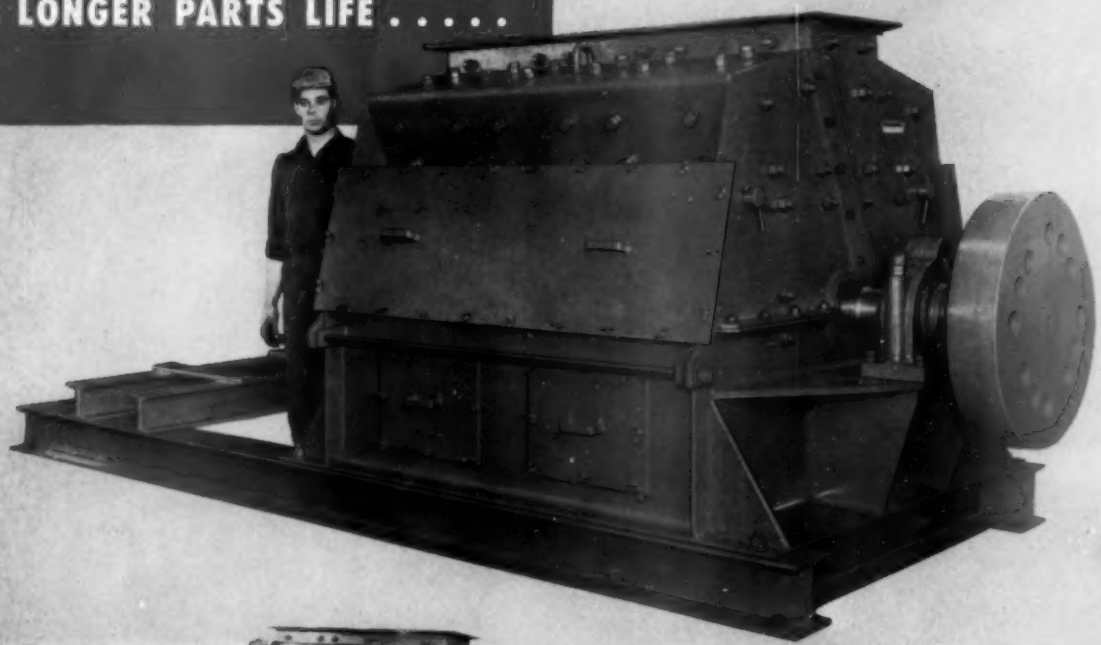
EASTON®

NEW DUAL "2-POINT" ADJUSTMENT INSURES MORE UNIFORM GRINDING, LONGER PARTS LIFE . . . . .

WILLIAMS *Reversible* HAMMER MILLS



Williams Reversible Hammer Mill with cover open.
Note these features:

- Super-strong reinforced steel plate frame
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- Heavy duty oversize forged steel rotor shaft
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It's another Williams "first"—features not available in other hammer mills—that now makes it possible to maintain the original close clearances of *both* grinding plates *AND* cage sections against the rotating hammers. This easy-to-make "2-point" adjustment, in the most critical grinding area inside the hammer mill, gives absolute assurance of consistently uniform product quality.

In addition to the advantages of the Dual "2-Point" Adjustment, a Williams Reversible Hammer Mill substantially lowers upkeep expense by cutting hammer cost. Hammers can be operated in one direction today and another tomorrow simply by installing a simple reversing switch on the driving motor. Manual reversing of hammers no longer necessary. Grate bars also last longer. The double set of reversible manganese breaker plates, which last twice as long as other types, give four times the service! Maintenance and downtime are cut 50% or more.

Get all the facts about the hammer mill with *ALL* the top features.

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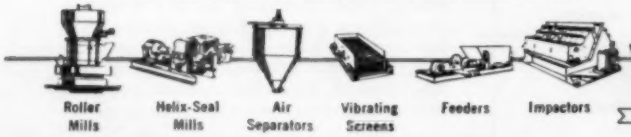

WILLIAMS
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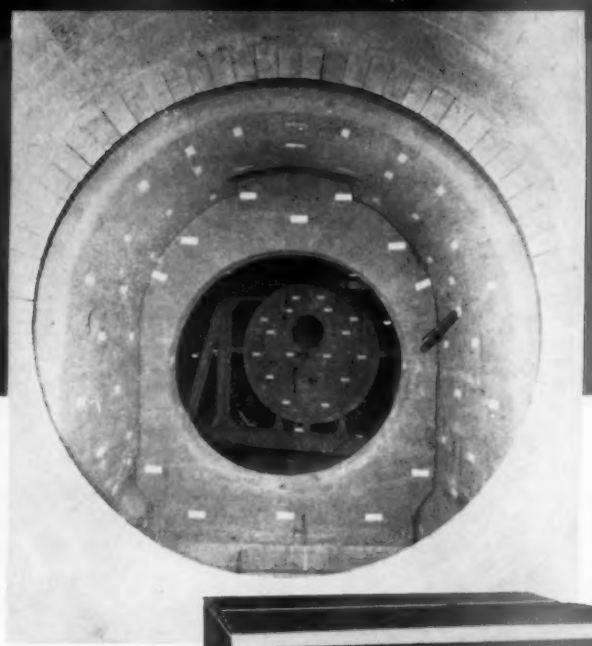
A. P. GREEN . . . SUPER HYBOND

JOB-ENGINEERED MONOLITHIC KILN FIRING HOOD



A. P. Green job-engineered monolithic refractory linings readily meet the complex construction requirements and varied service conditions in rotary kiln firing hoods. Furthermore, they offer specific advantages which can be money-savers.

The photograph illustrates A. P. Green SUPER HYBOND as recommended and installed in a typical firing hood. Notice the joint-free surfaces and positive anchorage throughout the lining. These features provide maximum protection against premature failure resulting from dust penetration, bulging, and buckling. Complicated, expensive masonry has been eliminated, as have resulting structural weaknesses.

SUPER HYBOND is a natural choice for such installations. It is a super duty plastic that develops high strength throughout the entire thickness of the lining—increasing the holding power of the anchors. Its high refractoriness readily withstands excessive temperatures, such as might occur in the seal ring or crown areas. Spalling and abrasion resistance are excellent.

A. P. Green offers a complete line of refractory products for the cement and lime industry. Whatever your requirement, for specific recommendations without obligation, contact your local A. P. Green Distributor . . . he's listed in the yellow pages of your telephone directory.

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BALL MILLS
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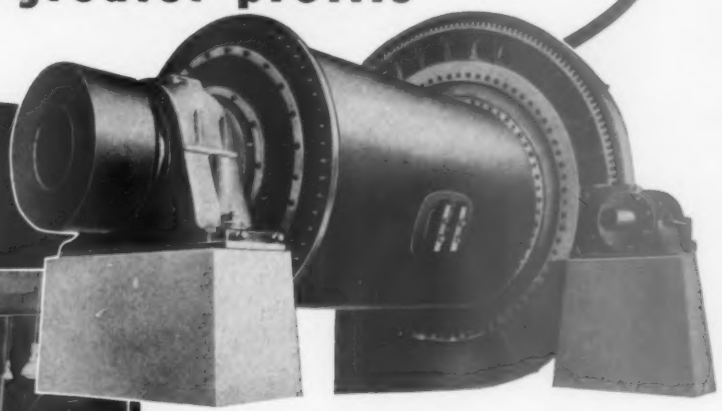

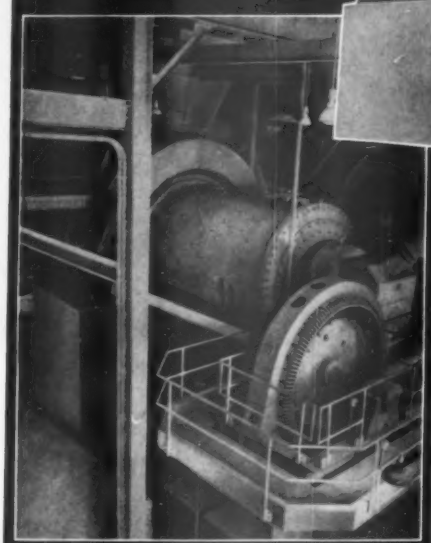

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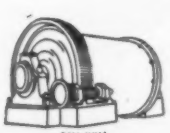
BALL MILLS

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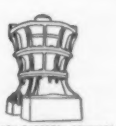
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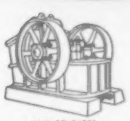
JAW CRUSHERS

SECONDARY GYRATORY CRUSHERS

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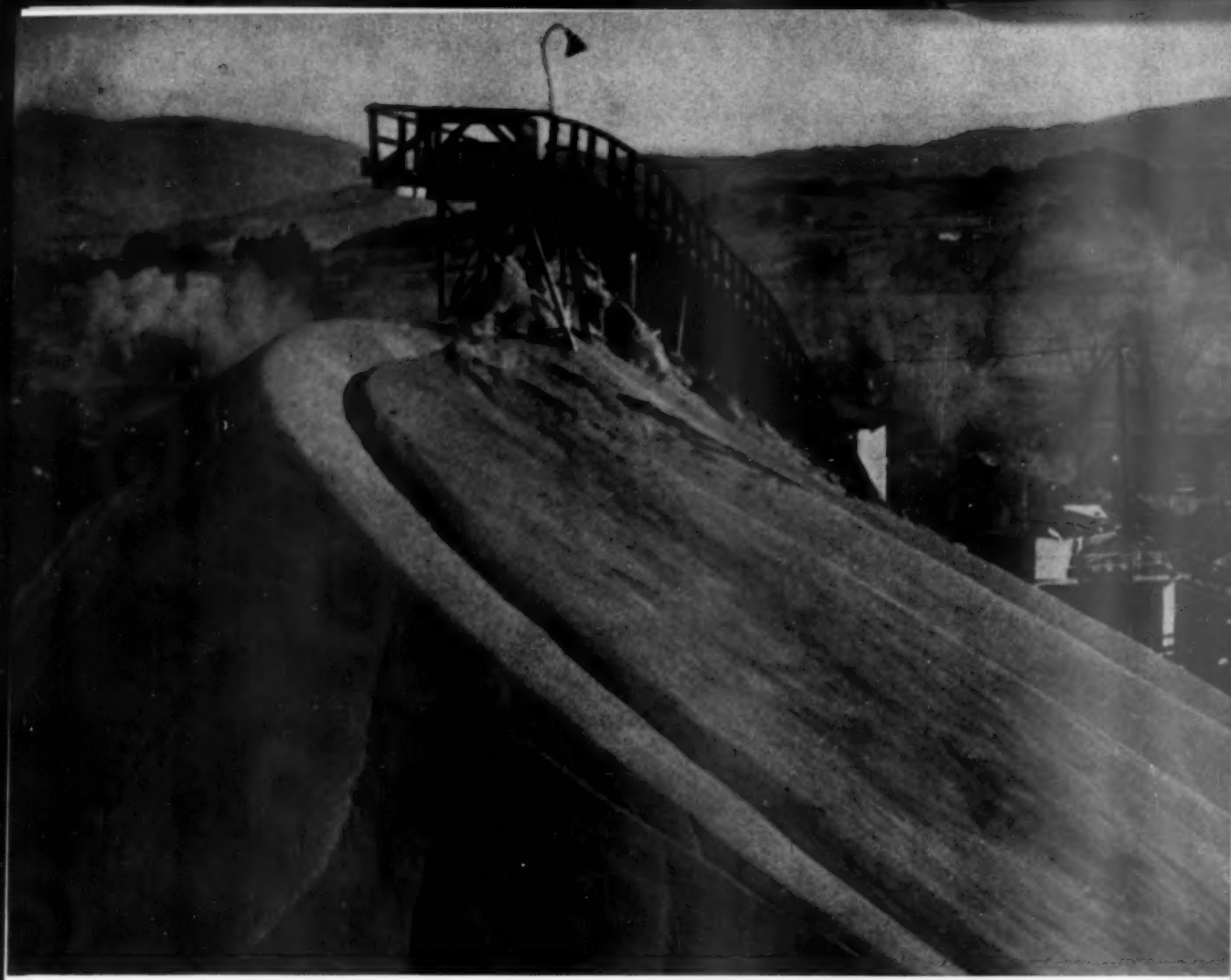

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Lubrication Plan

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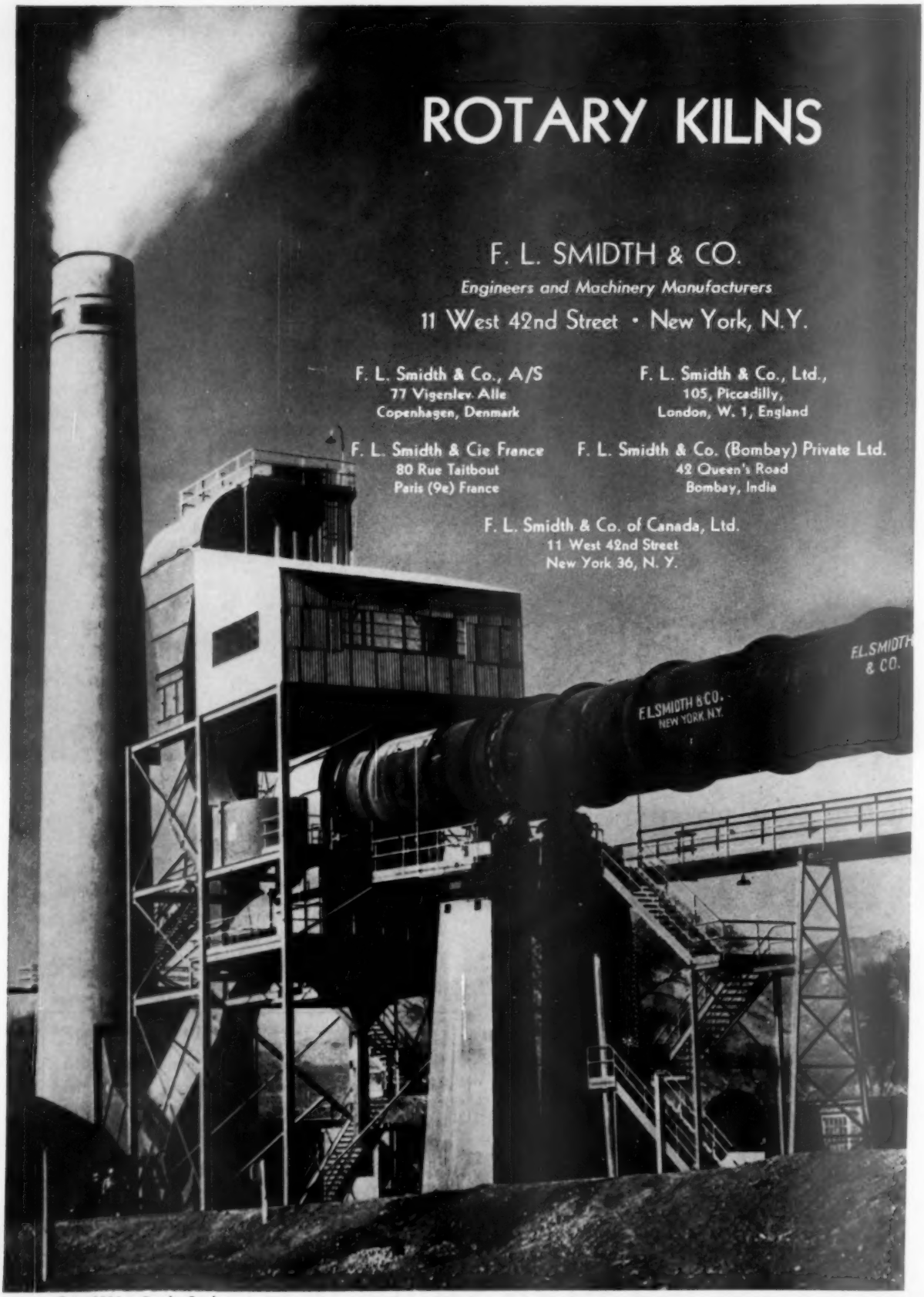
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What's Happening

IN OTHER FIELDS OF INTEREST TO THE ROCK PRODUCTS INDUSTRY

June, 1958

Crushing rock inside a mountain by atom blasting holds possibilities for the mining industry, thinks Dr. Willard F. Libby of the Atomic Energy Commission. The recently reported blast that was conducted last summer crushed 400,000 tons of rock inside the mountain. Dr. Libby suggests that such a procedure might be practical for loosening up mineral-bearing rock formations, making it easier to get at the minerals. The atom bomb also may be an effective means for getting at the oil in Canada's oil-rich Athabasca sands. A **Financial Post** reporter in Washington said that the AEC, though cautious in its predictions, indicated that nuclear blasting does hold promise. The idea is that the explosion would generate so much heat in the shale and tar sands that the oil would become thin enough to be pumped out.

Some of the $400 million of new federal funds allocated to the states for primary, secondary and urban roads can be put "in the bloodstream of the economy" if the states move fast enough, said Secretary of Commerce Sinclair Weeks, commenting on tax cuts and public works as economy boosting measures. In a TV broadcast, the Secretary urged states to move ahead with further highway building programs. Along the same vein, the Rockefeller study recommended as antidotes to the current recession: a tax cut, which can be effective in the shortest time; a speedup of public works projects already underway and a launching of only useful projects that can be started within three months and completed with a reasonable period—another 12 to 18 months.

Construction outlays in the March quarter, reports the **Wall Street Journal** from figures released by the Departments of Commerce and Labor, were carried above year-earlier levels by a seven-percent increase in spending for public housing and highways. Private building expenditures were unchanged from the like 1957 period. Total outlays in all categories were placed at $9.7 billion—a $200-million increase over the initial three months last year.

The Labor Department reported that despite adverse weather conditions which delayed start of construction in many sections of the country, privately-owned dwellings begun in the first quarter of 1958 were almost the same as in the like 1957 period—199,300 compared with 202,500. Total housing starts for the first quarter were 213,000, down from 217,000 in the like period last year.

A pipeline-like tube constructed of stainless steel bonded with plastics is being studied by Aerojet-General Corp. for transcontinental mail delivery. The California firm reportedly would use the same construction principles for the tube as for its military rockets. The mail-carrying rockets would be shot cross-country at supersonic speeds through the tube. The Post Office is said to be cooperating in the study.

A maker of trailers for the rock and construction industries has been bucking the recession by adopting a practice long followed in the automobile field—the demonstration drive. In this case, however, the demonstration may last for months. The company started this selling program last fall to boost sales. Under a test-first-buy-later plan a Durham, N.C., user put an off-highway trailer through a rough ordeal for 2½ months to prove its worth; he liked it so well he bought nine. Apparently this idea is working; the firm's sales were up 37 percent in 1957 over 1956, and first-quarter sales and profits in 1958 were estimated at last year's levels.

A vehicle of the future may glide on air. First demonstration of the "Glideair" principle was given by Ford Motor Co. when reporters took rides on two wheel-less vehicles that glided about on layers of air three-thousandths of an inch thick. Equipped with three levapads—flat discs with circles of tiny holes in the center—the vehicles were raised from the ground by compressed air blown through the holes. "Our calculations show that about 50 hp. will be required to levitate one ton of vehicle weight," said David J. Jay, senior development engineer. "Once free of the roadbed, however, it takes only about 40 additional hp. to move it 100 mph." Because the levapads need a smooth surface over which to glide, they can't be used on present highways, said Andrew A. Kucher, Ford vice president. The Glideair may have its first practical use in long-distance travel on a monorail or possibly a railroad.

An action to make aluminum more competitive with other materials has been taken by all major U. S. producers of the metal. Halting a 10-year price rise was the industry's recent reduction of pig metal 2 cents a pound, to 24 cents. Reasons for the cut are greatly expanded productive facilities and more to come; declining consumer demand, and users' reductions of inventories. Aluminium, Ltd. of Canada touched off the price trimming. Its president, Nathanael V. Davis, expressed the hope that the cut would "encourage engineers and manufacturers to design their products for more aluminum and thus open up new applications for our product."

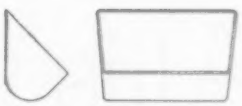
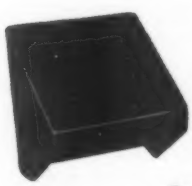
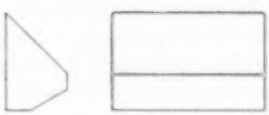
The top 30 ft. of an underwater mountain—Ripple Rock—were blown off in a blast that has been called the free world's largest nonatomic explosion. The hazard to navigation in Seymour Narrows near Campbell River, British Columbia, was obliterated in a $3.1-million blasting operation requiring 2,750,000 lb. of explosives. Preparations for the blast rock took 2½ years, requiring tunneling more than 2,000 ft. under the channel and going up 300 ft. into Ripple Rock's twin peaks where lateral tunnels were bored and packed with explosives.

Shoemakers have begun to vulcanize rubber and composition soles to leather uppers in one seamless, stitchless unit. The result: practically waterproof leather footwear. Two research developments are responsible for the process—Dow Corning Co.'s silicones which waterproof the leather, and a high-pressure machine developed in Great Britain which molds the soles to the uppers. Industrial workers will be the first to benefit from the new process but other shoewearers won't be far behind, comments the **Wall Street Journal**, heralding a new era of freedom from galoshes.

The editors

For longer lifting life...

LINK-BELT makes cast elevator buckets for a wide range of materials and capacities

A COMPLETE LINE...	FOR VARIETY OF MATERIALS...	CORRECTLY DESIGNED...	WITH LONG-LIFE FEATURES
Style AA	Designed for handling coal, grain, chemicals, pulp, and similar materials. Recommended for especially heavy and gritty materials such as sand, gravel and stone.		Style AA cast elevator buckets are made with a wide, thick, reinforced lip for digging and greater resistance to wear and distortion.
Style AA-RB	Handle same type materials as Style AA buckets. However, these are recommended for extra-heavy service conditions.		Style AA-RB buckets feature double-thick backs for greater strength against bolt pull-through, plus heavy "pick-up contoured" digging lip and reinforced ribs.
Style B	Commonly used for handling coke, ores, stone, and other coarsely broken materials.		Style B cast elevator buckets offer the proper shape and low front to insure clean discharge at relatively low speeds. Designed for inclined elevators.
 Continuous	Designed for elevating coal, sand, gravel, crushed stone, and similar dry materials.		Continuous cast elevator buckets provide high capacities at low speeds. The flanged front acts as a chute for succeeding bucket—provides clean, gentle discharge.

To obtain better performance, less downtime from your bucket elevators—choose the cast bucket you need from the complete Link-Belt line. They're available in malleable iron or Promal. All have reinforced corners for added strength—are designed for fast filling and quick, clean discharge.

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12,488

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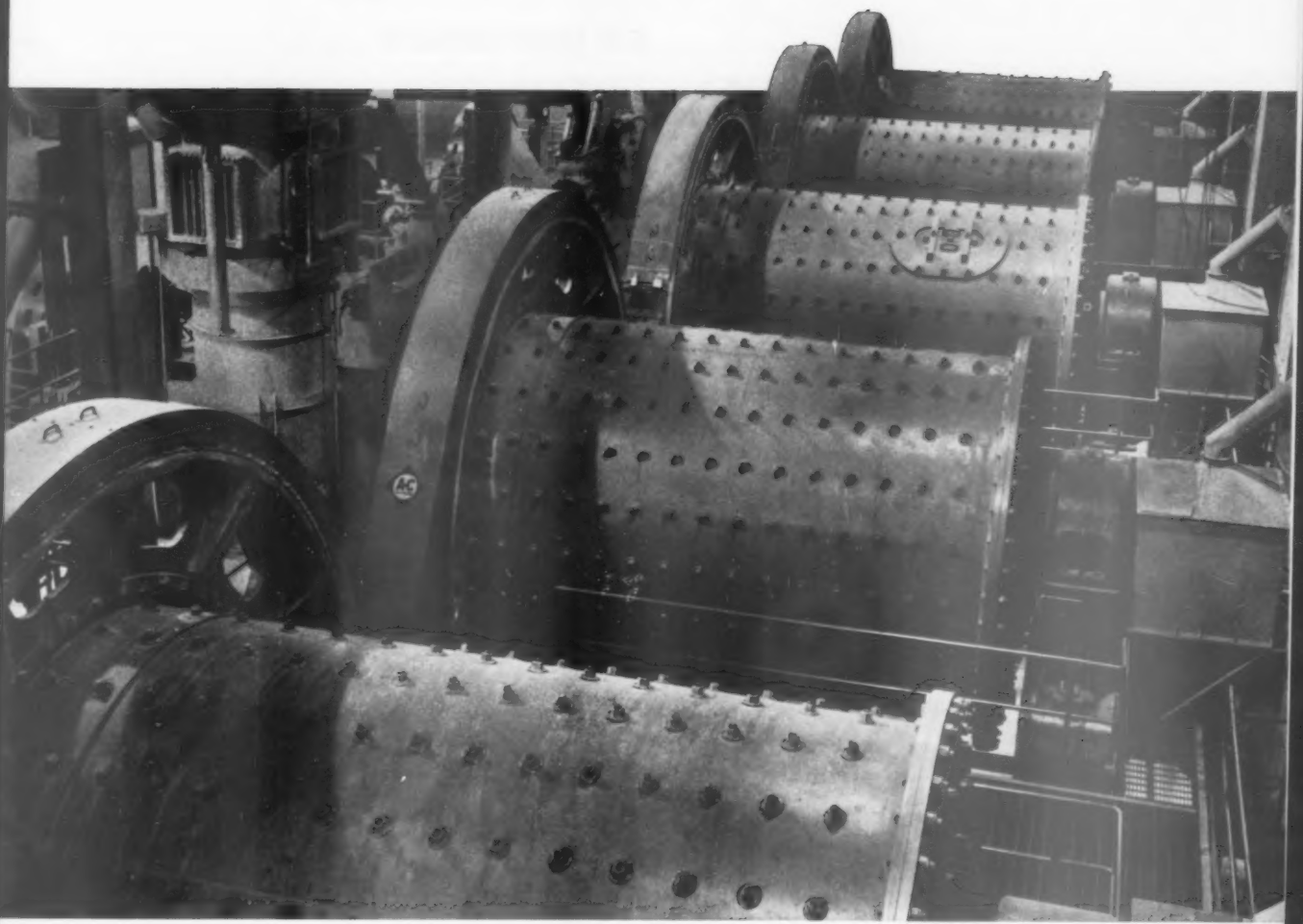

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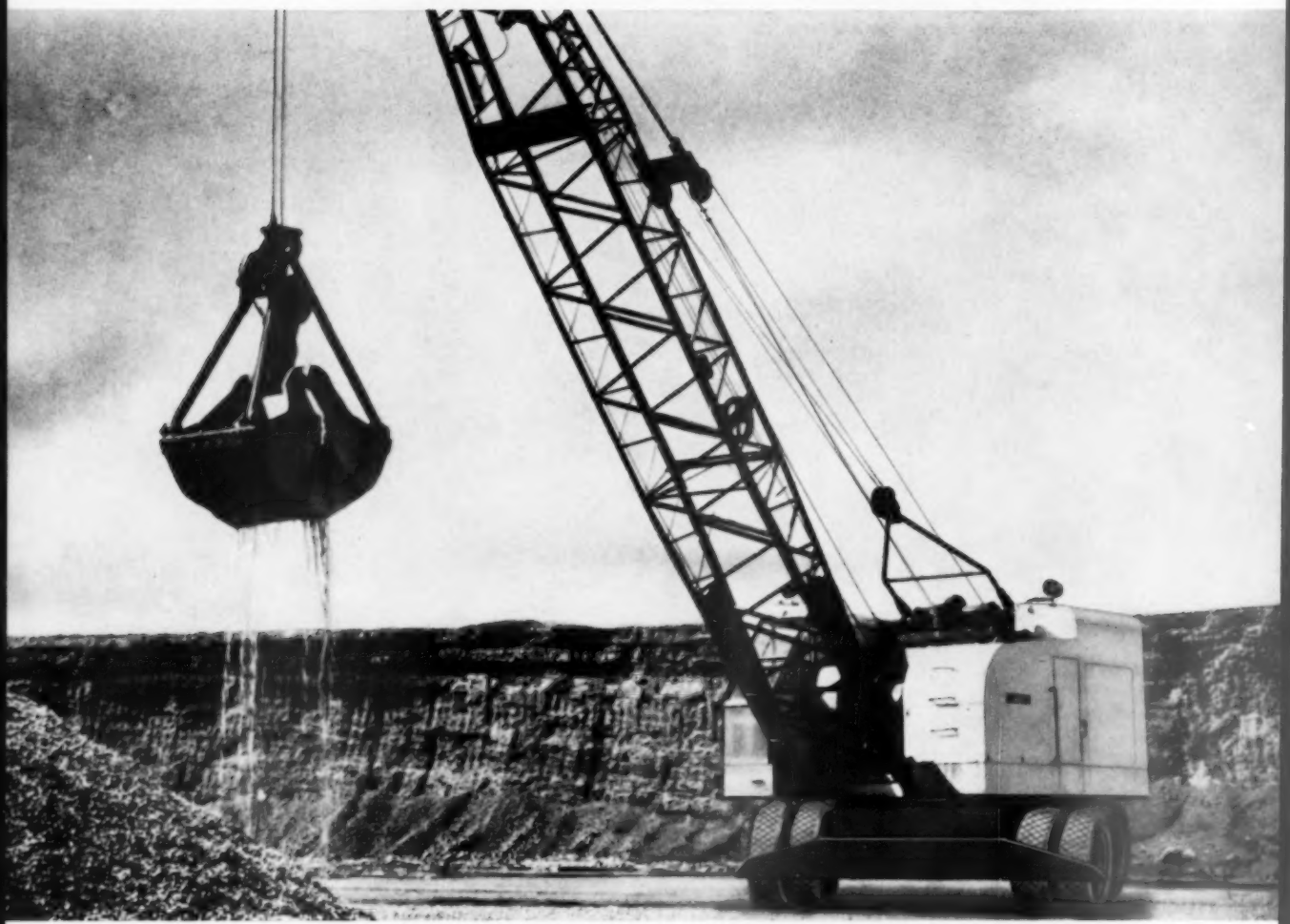

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THE MOST POWERFUL NAME IN CRANES

EDITOR'S PAGE

George C. Lindsay, Editor

Your responsibilities will grow and grow!

YOU, AS PRODUCERS of materials for construction, have a grave responsibility to the national economy. Supplying the needs of the present highway program is but one example. Your record to date is without blemish. But, if you think your troubles are big now, just wait!

You'll be concerned, as we were, to learn that projection for road needs to satisfy future vehicle travel is much higher than anticipated only a couple of years ago. We're going to need more and more roads—and more and more industry products to build them.

Some basic facts in this connection were pointed out recently by E. H. Holmes, Assistant Commissioner for Research, Bureau of Public Roads. In making these facts available, he accented the fact that there's nothing in the forseeable future that will tend to retard the growth of motor vehicle transportation. Also, it is inextricably tied to our future growth in national economy; roads must grow as the country grows.

Highway travel has grown faster than our national economy since 1953, but the curves still follow a nearly parallel course. Did you know that, based on the 1956 dollar, there is a mile and a half of highway travel for each dollar of gross national product? This relationship has held fairly steady, which makes it easy to project future volumes of highway traffic if one can project our economic growth.

Based on what we now know, needs for our highway system will become staggering in a short 18 years. Right now there are more than 80 million drivers of 67 million vehicles that use the highways, according to Mr. Holmes. In 1965 there will be 81 million vehicles that will travel 814 billion vehicle miles. And that may be the understatement of the year. But by 1975 the Bureau is anticipating 1.2 trillion vehicle miles of travel—90 percent more than the 1957 figure!

Yes, American people will continue to want "to go from here to there sitting down," as the famous automotive expert Kettering expressed it. And, says Mr. Holmes, they'll not be as concerned about "efficiency" of automotive travel as they will be about what they want and can afford. That's the American way. Yet, some savings have been recorded for motor truck transportation on present through-highway systems. This makes that phase of the projected system even a more direct part of the economic picture.

Can't you see what a job lies ahead of the rock products industries in supplying the materials for the future highway system? And that's only part of it; the nonhighway business you'll have to supply may be four times greater than the future road programs will require!

Get set for bigger responsibilities.

Two Macks—one driver. One truck is on the move while the other is being loaded, for fast cycle operation from quarry to crusher.

"Our MACKS guarantee our production"

"Our stone-crushing operation is automatic, and to get full use out of it, we need trucks that can maintain a tight production schedule," reports Mr. Alexis Dyer who, with his brother Frank, owns and operates a 300-acre stone quarry near Reisterstown, Maryland. "And believe me, our 2 Mack LRX dumpers have done it, in spite of the rugged terrain they have to cover from loading to dumping."

The Dyers' Macks are loaded at the far end of the quarry with a 17 or 18 ton load. Then they cross the rocky, pock-marked bottom of the quarry, plowing their way through waterholes two feet deep, and climb a steep quarter-mile grade to the crusher.

The ability to maintain a tight schedule over this jarring terrain would be a harsh test for any truck. In fact, the Dyers' previous trucks broke down frequently, seriously handicapping their output. Now, with their Macks, the Dyers experience no trouble maintaining their schedule. A full day's production for the two Macks averages 1500 tons, with each truck using only 15 gallons of fuel per day.

James Williams, who drives these two Macks, likes their maneuverability. "They drive very well—no trouble at all," he says. "Another thing I like is that there is much less shifting than there was on our other trucks, which means I'm much less tired at the end of the day—even though I make 80 round trips daily from the quarry to the crusher."

The Dyers are enthusiastic about their Macks and are planning to purchase another one in the near future. If you need help with a heavy hauling job, why not see your nearest Mack representative for full information. Mack Trucks, Inc., Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

MACK
first name for
TRUCKS

5268

ROCKY'S NOTES

NATHAN C. ROCKWOOD

What can't man do to this planet?

THE SUBJECT RAISED in our May discussion, that mankind might devise means to change the climate of this planet by changing the direction of the Gulf Stream, is certainly an intriguing one. It has led us to read with interest some recent comments by scientists, that might otherwise have been overlooked. For example, in **This Week Magazine** for March 30 is an article entitled "Another Ice Age is on the Way." The authors are Dr. Maurice Ewing, a noted oceanographer and geophysicist, and Dr. William L. Donn, a professor of geology and geophysics.

Their theory is just about the antithesis of that outlined in the "Notes" article in the May issue, whereby it was suggested that our climate could be improved by changing the course of the Gulf Stream in the Atlantic Ocean. Their theory is that a new Ice Age is in the making because the warm water of the Gulf Stream is even now melting the polar ice in the Arctic Ocean, through the narrow channel between Norway and Greenland. This creates water in that part of the Arctic Ocean, where, for continuance of the present climatic conditions, there should be only perpetual ice.

Their theory is further based on the premise that glaciers are caused by vast accumulations of snow, which never melts. With the prevailing winds from the east, under existing conditions, moisture is picked up from the mingling of warm and cold waters of the Arctic Ocean north of the channel between Norway and Greenland, and this moisture is subsequently being deposited as permanent snow on the polar ice cap, north of Canada. In the next ten or eleven thousand years, this means that the ice cap, or polar glacier, will be so enlarged as to push south as it did some eleven thousand years ago, when a large part of what is now the United States was buried under a huge layer of ice.

At that time, if this part of North America was inhabited at all, it was very sparsely so by hunters and fishers, who retreated slowly following the game and fish before the advancing glaciers with little inconvenience. This may have increased the population of the Southwest, Mexico and Central America, but otherwise its effect on mankind wasn't important. Today, of course, a similar glacier would bury the presently most populous and the most important industrial parts of the United States. It would result in disaster beyond imagination. Because it may be a long time in the future and a long time in the making, measured by human landmarks, is no reason why we should not contemplate its possibilities, for both present and future generations are merely temporary lessees of our earthly planet, not its owners, as seems to be a common misconception. Nature has ever had a way of correcting our vanities.

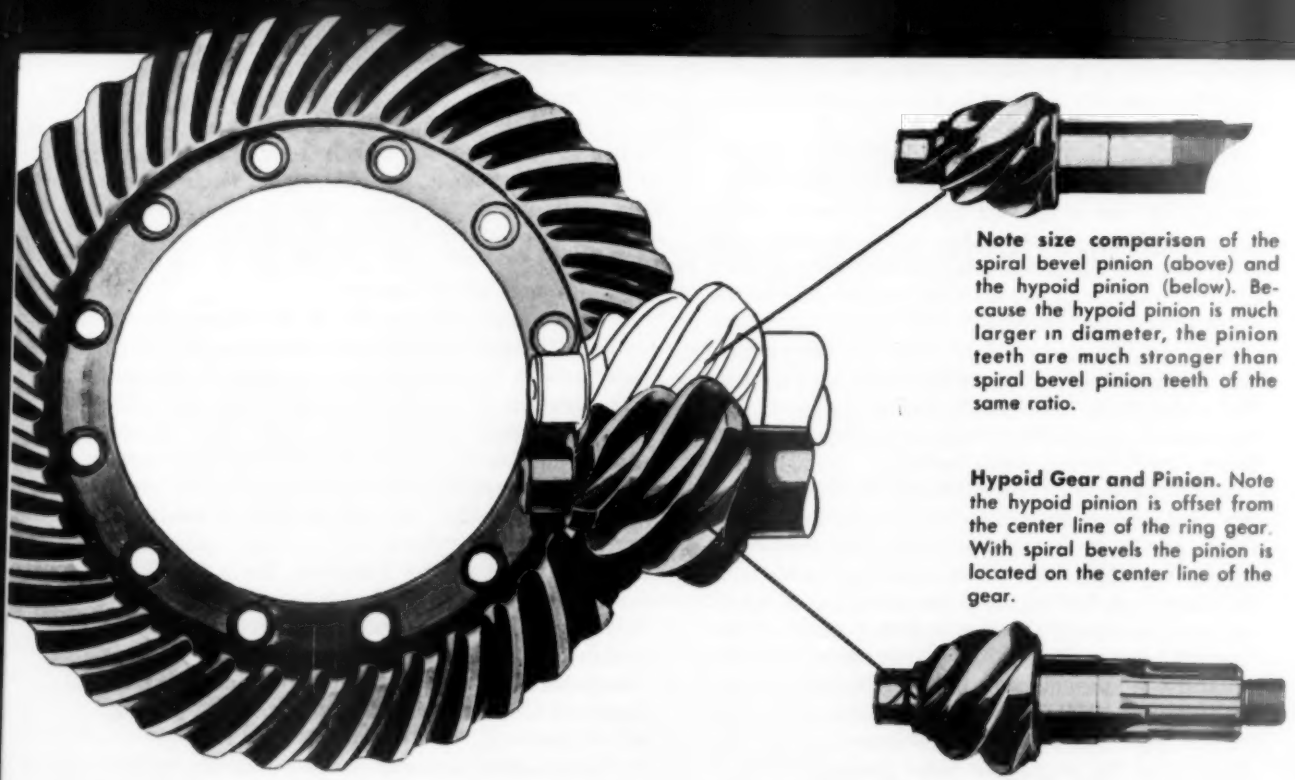
Possibilities of atomic energy

We have also read that one of the recent experiments with atomic or nuclear explosives, was in an underground, abandoned mine, in Nevada or some other western state. The purpose of this has never been divulged. It has also been suggested that previously the Russians had conducted similar experiments. A recent scientific quotation in the daily press proposes that by such means an enormous amount of useful energy could be accumulated and stored. The heat and radiation from the blast would probably be absorbed by surrounding rock. Subsequently water would be introduced, steam generated and power produced and applied through steam turbines and electric generators — and a chemical industry would be built upon the dissolved elements.

This in effect is a man-made miniature volcano or creation of a hot spring, since the modern theory is that volcanic eruptions and similar phenomena are caused in part or perhaps entirely by

Please turn to page 124

Hypoid Gears 30% More Torque Than Spiral Bevels!



Note size comparison of the spiral bevel pinion (above) and the hypoid pinion (below). Because the hypoid pinion is much larger in diameter, the pinion teeth are much stronger than spiral bevel pinion teeth of the same ratio.

Hypoid Gear and Pinion. Note the hypoid pinion is offset from the center line of the ring gear. With spiral bevels the pinion is located on the center line of the gear.

Products of ROCKWELL-

Have Capacity

Timken-Detroit pioneered and developed hypoid gears for trucks of every type and capacity... and today is the acknowledged leader in the field!

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MUSHROOM
SPECTOR MID-STATES

The trend of the trucking industry today is to hypoid gears, because their torque capacity is 30% greater than that of spiral bevel sets of the same ring gear diameter and ratio! The result is lower maintenance costs, greater dependability, and lower-cost operation. And, since hypoid gears do every driving axle job better . . . from the smallest single reduction axles to the largest double reductions . . . more and more operators specify them every day.

Hypoid gearing is another plus feature found in all Timken-Detroit Letter Series Single and Tandem Driving Axles!

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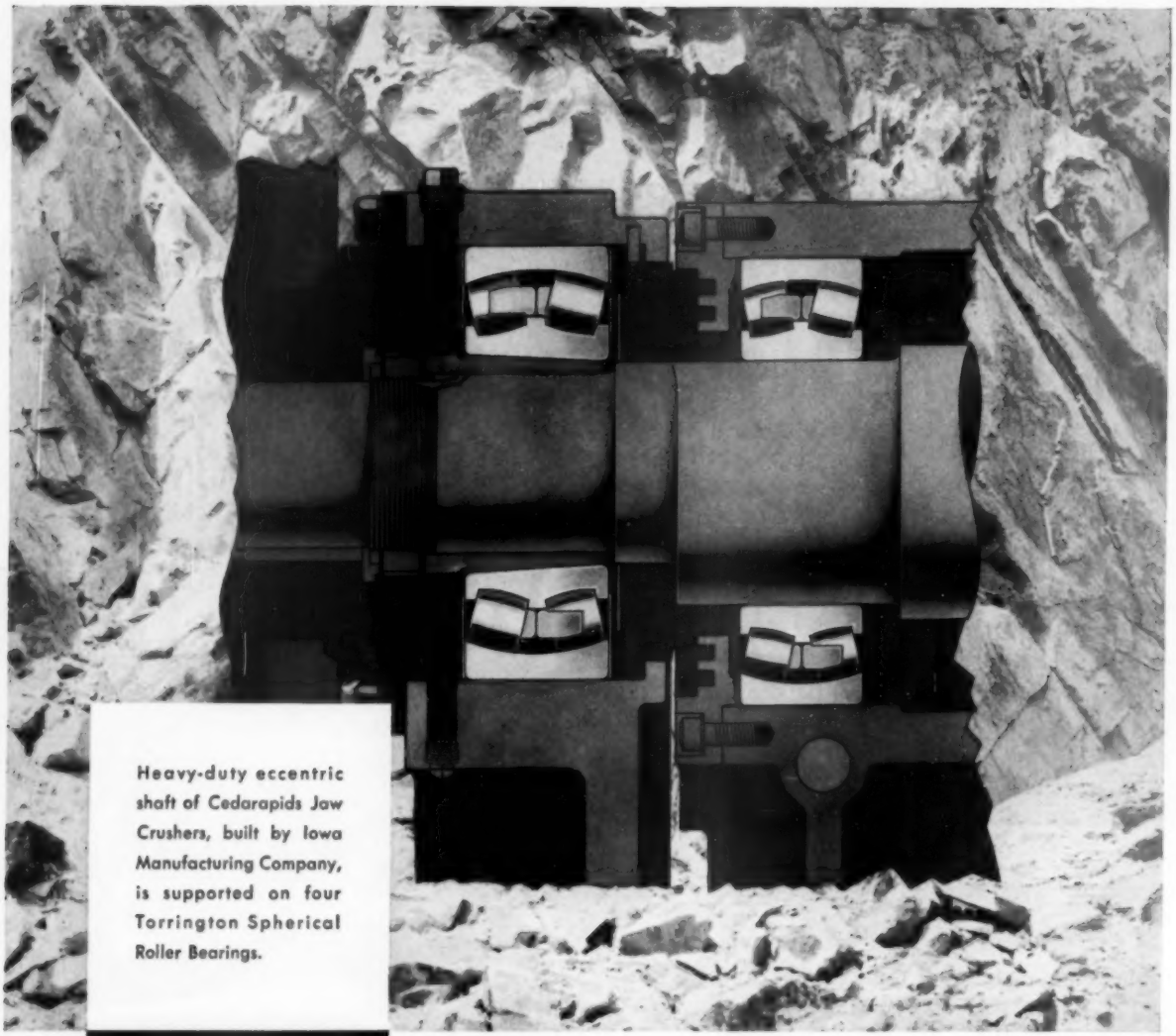

Heavy-duty eccentric shaft of Cedarapids Jaw Crushers, built by Iowa Manufacturing Company, is supported on four Torrington Spherical Roller Bearings.

Designed for tough service

Cedarapids Jaw Crushers are designed throughout for tough, day-in, day-out service, right down to the bearings used on the eccentric shaft.

Torrington Spherical Roller Bearings are used because of their ability to align under load, rugged construction, stamina and stability. These bearings provide high radial and thrust capacity—more than enough to withstand the severest loads and shocks the jaw crushers can deliver in hard service.

Torrington Spherical Roller Bearings also are used in Cedarapids roll crushers, hammermills and impact breakers—and in many other construction equipment applications. For your toughest jobs, rely on Torrington Bearings and Torrington engineering experience. **The Torrington Company, South Bend 21, Ind. and Torrington, Conn.**

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Washington Letter

Edgar Poe

Labor In Politics

A conservative member of Congress confided to a handful of friends on Capitol Hill not too long ago. Said he: "I'm in trouble. The CIO's Political Action Committee has lined up behind a young man in my district. They have the dollars by the thousands. I do not have any yet. Of course I can get some, but I'll never be able to match the money labor is going to put into this campaign. My opponent is preparing a comprehensive advertising campaign. Labor is out after me."

This particular incumbent member of Congress is one of probably 40 to 50 members who are facing somewhat similar circumstances this year. They are forced to compete with the open purse-strings of the CIO's Political Action Committee. Labor has millions to spend on the congressional elections.

Labor leaders want to have more influence in the halls of Congress, in the courthouses and statehouses across the land. The facts are that many of the incumbent members of Congress owe their elections to labor.

The rank and file of businessmen are uninformed politically of what is going on backstage in the efforts being made by labor to elect the men of their choice to office.

Tax cut Seen Dim

The foremost guessing contest on Capitol Hill as the May flowers began blooming was: "Will there be a tax cut at this session?" While rank-and-file members of both parties are on record for a tax cut this election year, chances are there will be no reduction this year.

"I am going to vote for a tax cut," confided a member of Congress, "if such a bill comes up on the floor, but I'm guessing that the president would veto any cut that Congress might pass."

Another piece of legislation that would appear to be headed straight for a veto is a proposal to extend for 16 weeks unemployment compensation to those among the unemployed who have exhausted their benefits. The pending measure would, among other things, extend the program to 1.8 million workers who are not covered by the jobless insurance plan. It was possible that the proposal, with some amendments acceptable to the White House, could receive presidential sanction.

Upturn In orders

A sharp upturn in new orders placed with manufacturers is an encouraging sign. Officials in the executive branch of the government say that the decline in plant and equipment expenditures seems to have been arrested. Consumers continue to use credit at about the same rate as last year. In addition they have $300 billion in demand deposits and liquid savings that they can draw on if they wish. Secretary of Commerce Sinclair Weeks was on the hustings during the spring, advocating more intensive sales efforts with emphasis on advertising.

Highway Spending Authorized

President Eisenhower signed the highway bill with "serious misgivings". The measure authorizes a $1.8-billion increase in federal highway spending this year. During debate some of the congressional advocates maintained that it would provide more than 80,000 additional jobs this year. However, the full impact of the act is not expected to be felt before next spring.

Major General Louis W. Prentiss, executive vice president of the American Road Builders Association, says the 1958 law corrects some provisions in the 1956 act insofar as it applies to the 1959 and 1960 fiscal years. He said it makes possible continuation of the program for these two years as generally planned. It does not, he contends, solve all problems since solution of the long-term financing problem affecting the 41,000-mile interstate highway program remains. He added that additional corrective legislation will be required at the 1960 session of Congress.

Roadbuilding Moves Ahead There is perhaps more road construction now underway than in any time in history, but the work load will be substantially greater this time next year. Although the divided, multi-laned, stoplight-free interstate road program has captured the imagination of the public and the headlines, actually the 41,000-mile system will constitute but one percent of the total mileage.

Vincent P. Ahearn, executive director of the National Sand and Gravel Association, said the interstate system—as far as the use of sand, gravel and cement is concerned—is substantially a local program. The reason is both materials and manpower are drawn from nearby sources.

The federal-aid primary, secondary and urban highway construction programs are moving ahead simultaneously with the building of links of the interstate system.

Nothing More on Depletion Congress is expected to end its 1958 session without disturbing the depletion allowance schedule on a series of things including the small allowance granted for sand and gravel.

However, there are now five states that levy a severance tax on sand and gravel. They are Arkansas, Louisiana, New Mexico, Washington and West Virginia. While New York State has no severance tax on sand and gravel, a number of municipalities have imposed such a tax, averaging 1 cent per cubic yard.

With the various states seeking ways to find more income because the federal government has snapped up most of the tax sources over the years, the National Sand and Gravel Association says the industry in all states must be vigilant to keep the tax from spreading. On the other hand, if it appears that some kind of tax is to be levied, the industry must be prepared to develop a tax that will prevent extreme hardships and result in inequities.

C of C Makes Suggestions The United States Chamber of Commerce, a federation of 3,300 state and local chambers of commerce and trade, industrial and professional associations with an underlying membership of 2,500,000 businessmen, has made a series of recommendations involving construction and civic development. All the recommendations either directly or indirectly affect the rock products industries.

Local chambers of commerce are called upon to increase their leadership in urban development activities and encourage comprehensive planning for metropolitan areas. Construction and civic development basically is a local responsibility. On the subject of housing, the United States Chamber of Commerce is on record as declaring that private ownership of housing, either rental or owner occupancy, is a basic principle in our economy. Therefore, there should be no further federal appropriations or participation in the financing of public subsidized housing.

In another declaration the Chamber says the construction industry should make further efforts to develop more intensive research to determine what the consumer wants for his construction dollar and to stimulate the markets for housing and other construction.

Substantial housing market research on the part of the housing industry elements is needed to overcome factors which limit the potential of the housing market and the growth and development of our communities. These factors include the supply of manpower, materials and money.

The Chamber of Commerce is on record with declarations on the labor-management question that most politicians keep a tight lip on. The right of an individual to work or quit work is inviolate. However, the Chamber maintains certain types of strikes constitute an improper use of force and should be prohibited by law. These include sympathy strikes, strikes in violation of contract, jurisdictional strikes and strikes alleged to correct unfair labor practices. Strikes should never be permitted against federal, state or local governments.

The Chamber struck out at what many employers have been saying a long time—government-imposed regulations and decisions do not bring about industrial peace and understanding like those freely arrived at by employer and employes sitting down and working out their own problems.

Work Week Dispute The unemployment that has cropped up has caused a few members of Congress and some labor leaders to call for a shorter work week. Nevertheless, some of the Senate and House leaders say that a shorter work week would result in higher labor costs when the level of high employment returns. Some members of Congress feel that if higher wages are sought, it should be done up on the table, rather than by a disguise of shorter working hours. Actually a shorter work week would result in substantial "overtime" pay for companies in the rock products industry during peak seasons.

END

Cutting costs is the primary function of portable conveyors

To make the greatest cost savings, portable conveyors must:

. . . have quality construction for long life and trouble-free operation. They must be available in the length and capacity range to suit your needs. They must be available with the features and accessories you want—screens, power hoists, pneumatic or steel wheels, gas or electric drives, etc.

They must be easy to move around the yard . . . easily towed from job to job. They must withstand constant use and frequent movement.

Shown above is the portable conveyor of advanced design, the Barber-Greene 363. Shaft and gear reducer drive—no chains—no sprockets, full swiveling wheels, Acme take-ups and many other exclusive features.

Shown below are other models in Barber-Greene's complete line of cost-cutting conveyors.

Model 374 cuts cost at high capacity. With capacities up to 425 t.p.h., this heavy-duty machine has antifriction bearings, shaft and gearbox drive, hydraulic boom hoist and other features.

Model 358 cuts cost of car unloading. Feeding a conveyor, this car unloader releases cranes and other expensive equipment for other work. Handles gravel, sand, stone, cinders, etc.

Model 362—low-cost, high-quality portable. Three-roll carriers, swivel wheel truck, and many other features not available on conveyors of this low-price range, are standard on the 362.

56-8-PO

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How would you decide?

A roundup of actual day-to-day in-plant problems and how they were handled by management men

Do you have to give advance notice to employes who are laid off because of a slowdown?

What Happened:

THE COMPANY HAD THE fairly common rule that employes would receive 72 hours' notice before a lay-off unless some "emergency" made it impossible for management to give such notice. One weekend, production in two departments fell 42 percent. It was obvious to the management that this was the result of a deliberate slowdown. Because the flow of finished goods was cut in half, the men in two departments were sent home without prior notice. They filed a grievance:

1. We must be given 72 hours' notice before lay-off.
2. A slowdown is no "Act of God" and no emergency existed.

The company answered that the 72-hour notice rule was to protect the worker against faulty planning by the company. But a slowdown is something the management couldn't anticipate any more than it could foretell a hurricane, a fire, a sudden cancellation of an order. Therefore, a slowdown was an emergency in every sense of the word, and did not require advance notice of layoff.

Was the company:
Right? ☐ Wrong? ☐

What Arbitrator McCoy ruled:

"The company proved without contradiction and without any suggestion of explanation from the union that there was a deliberate slowdown. The only question, therefore, is whether such an occurrence constitutes a case where 'emergency makes such notice impossible.' To my mind there can only be one answer to such question. The closing down of the two departments was not planned by the company and and was not desired by the company. The pile-up in one department was a totally unexpected development, due not to faulty planning of the company, but due to deliberate slow production by employes in another department. It created an emergency which necessitated closing of the two departments immediately and without the 72-hour notice which would have been necessary in a nonemergency situation. For these reasons I find that the company did not violate the contract and that the grievances must be dismissed."

Should you discipline an employe for "minor" horseplay?

What Happened:

MCCASH AND O'BRIEN had been having a "friendly" feud for months. They were always playing little tricks on each other. One morning, McCash, to get even for a previous trick, released the brake on O'Brien's maintenance cart. The wagon began to roll, but was stopped before it could do any serious damage. McCash was fired for "horseplay." The union argued:

1. The worker is sorry for what he did, and should be forgiven.
2. There was no damage done.
3. The "horseplay" was of a minor character, and "all in fun."

The management countered with: Safety cannot be compromised with. There is no such thing as "minor horseplay."

Was the company:
Right? ☐ Wrong? ☐

What an arbitration board ruled:

"McCash should be reinstated, but without back pay. Horseplay has been going on at this plant almost daily. It is improper to penalize just one employe. Horseplay should be stamped out, not through an occasional penalty, but through constant vigilance."

(Continued on page 29)

Each incident given in this department is taken from a true-life grievance which went to arbitration. Names of some principals involved have been changed for obvious reasons. Readers who want the source of any of these cases may write to *Rock Products*.

TELSMITH

designed and equipped

- **Equipment was quickly and easily installed.**
- **Compact, efficient plant meets all expectations and requirements of its owners—**

ONTARIO CUSTOM CRUSHING LIMITED
Brantford, Ontario

Designed to produce 150 tons per hour when making all minus 7/8" aggregate—this modern, compact Telsmith plant can make all sizes of washed sand and gravel for construction requirements, including minus 1¼" plus 7/8", minus 7/8" plus 9/16", minus 9/16" plus 3/16", minus 3/16" sand.

Telsmith Equipped Throughout—CRUSHING UNIT: 30" x 5'6" Standard Duty Plate Feeder • 5' x 12' Double Deck Vibro-King Scalper • 13-B Gyratory Breaker • 48-FC Gyrasphere Secondary Crusher. WASHING-SIZING UNIT: Two 5' x 12' Triple Deck Vibro-King Sizing Screens • 24" x 19' Twin Screw Sand Classifier • 24" DorrClone Classifier.

All plant equipment was furnished by Ontario Equipment & Supply, Ltd., Telsmith Distributor, Toronto.

Send for Bulletin 266

Close-up of Crushing Unit showing Telsmith Vibro-King Scalper, 13-B Gyratory Breaker, and 48-FC Gyrasphere Secondary Crusher.

G-30

Airview of complete operation by Photographic Survey Corp. Ltd.

SMITH ENGINEERING WORKS

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IT'S A REAL ROCK DIGGER

Since they switched to a "Jimmy" Diesel

Want more work from *your* shovel? Then take a tip from T. B. Gatch and Sons, Inc., who operate a quarry near Churchville, Maryland.

They replaced the gasoline engine in this 1½-yard machine with a GM "6-71" Diesel a year ago. Results: 50% higher production. Two-thirds less fuel cost. Full capacity for work from half to full throttle. Less vibration and smoother operation that means longer life for boom, cables and other working parts. Says Senior Partner T. Ashby Gatch, "We can throttle the GM engine down and still retain ample power for the toughest rock digging. For boom swing we have the 'Jimmy's' quick acceleration, saving us time every cycle. There's no loafing on the job—this unit is now a real rock digger."

Taking tough jobs in stride is everyday work for GM Diesel-powered equipment. The 2-cycle "Jimmy" Diesel gives lightning response to power demands, operates on low-cost fuel and delivers years of dependable, trouble-free service. Specify GM Diesel when you order new equipment—ask your GM Diesel distributor about repowering old machines.

DETROIT DIESEL Engine Division of General Motors, Detroit 28, Michigan

GM GENERAL MOTORS DETROIT DIESEL POWER

Regional Offices: New York, Atlanta, Detroit, Chicago Dallas, San Francisco

In Canada: GENERAL MOTORS DIESEL LIMITED, London, Ontario

Now—more than ever—it pays to standardize on GM Diesel—available in 1485 applications of power equipment built by more than 175 manufacturers

Parts and Service Worldwide

A GM "6-71" Diesel powers Northwest 1½-yd. shovel operating in quarry of T. B. Gatch and Sons, Inc., Baltimore, Md.

Enter 1200 on Reader Card

(Continued from page 26)

Can you fire an employe who comes into the plant (1) drunk, and (2) pulls a gun on another worker—but on "his own time?"

What Happened:

BILL FERGUSON had it in for his counterpart on the night shift. The two had been feuding for months. One night, at the local bar, Ferguson hoisted a few more than he could handle. He then went down to the plant and pulled a gun on his "adversary." Fortunately the foreman was on the spot. He quickly called the guard and Ferguson was escorted out before any harm could be done. The next day Ferguson was fired, but the union came to his defense right up to arbitration. Its argument was that the company had no authority over an employe who is not on work-time. The company should have called in the police and let them handle Ferguson, the union claimed.

The company based its case on several points:

1. Ferguson brought intoxicants into the plant (internally).
2. A company has the right and the duty to protect its employes from dangerous characters.
3. Ferguson showed his irresponsibility by carrying a gun.
4. If a man's off-hour activities create tension and disharmony in the plant, management has a right to act.

Was the company:
Right? ☐ Wrong? ☐

What an arbitration board ruled:

"Ferguson's individual freedom to do as he pleases on his own time, and his personal liberty do not allow him to take matters into his own hands to the point of invading the company property and threatening a fellow employe. The company has not only the right, but the duty to manage its operations safely. Ferguson was fired for cause, and the grievance is denied."

•

Can a foreman take the authority of issuing orders to workers he doesn't supervise?

What Happened:

ON HIS MORNING BREAK, Jim Hanford got a container of milk at the canteen and sat down to drink it. After a few minutes, Foreman Grimes came over to him. "You made your purchase; now get back to work," Grimes said. Hanford didn't work for Grimes. He continued to sit there. Grimes came by again, and snapped, "I told you to get back to work. Now move!" Hanford jumped up and splashed milk into Grimes' face. The next day, Hanford was fired. He objected, saying:

1. Grimes wasn't my foreman and had no right to give me orders.
2. Grimes is a mean guy. Nobody likes him. He talks to people like they are dirt.

The foreman answered:

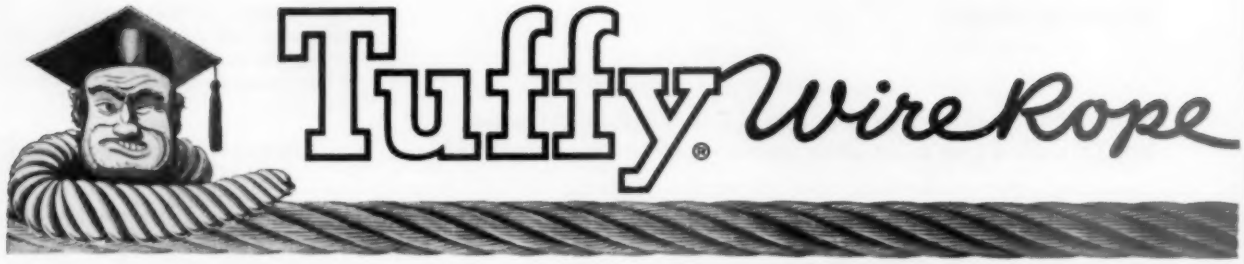
1. Any foreman has the right to tell any goldbricking worker to get back on the job.
2. Maybe I wouldn't win any popularity contest, but I said nothing out of the way to Hanford that time.

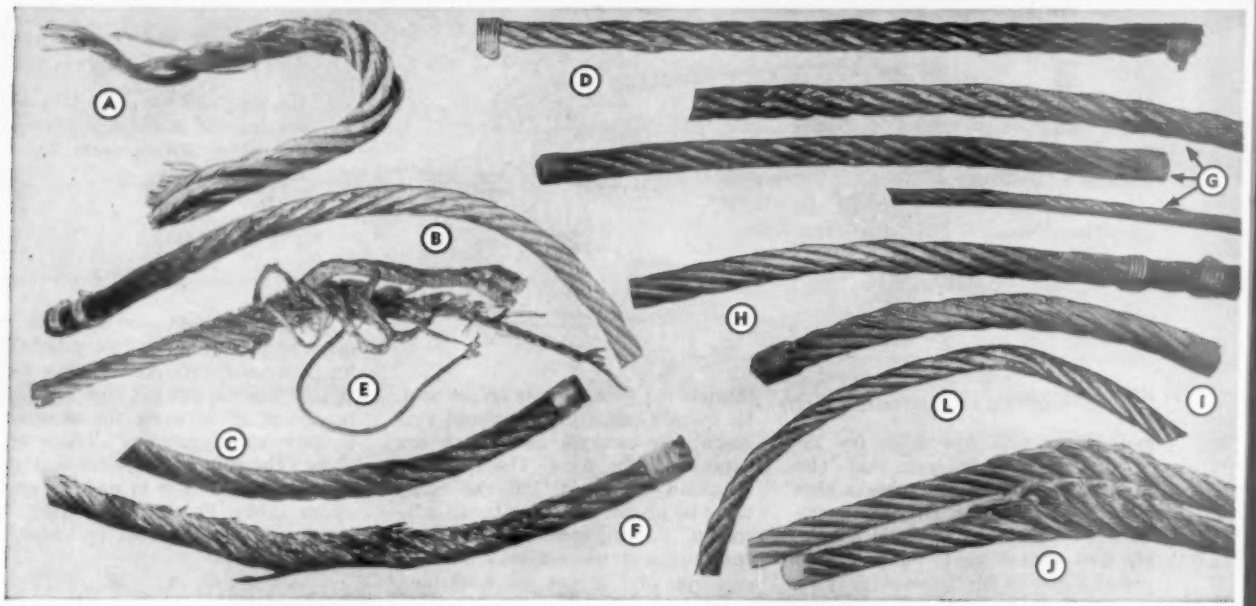
Was the foreman:
Right? ☐ Wrong? ☐

What Arbitrator Hildebrand Ruled:

"The company has a clear obligation to maintain efficiency in its plant. Any member of its supervisory force is within his proper authority when he instructs employes not to waste time. The duties of supervision do not lapse because a particular supervisor may not be liked or does not have a particular employe under his direction. Hanford was entitled to some penalty but discharge was an excessive one. He was a good employe until this unfortunate day. In my opinion 30 days' layoff without pay is justified as an appropriate penalty for his action."

END





Guard Against these Cripplers and Killers of Wire Rope

Pictured above are some of the results of wire rope abuses. They quickly ruin wire rope efficiency or end rope life abruptly, long before you have had the service you paid for. Even the best wire rope is a sitting duck for these enemies. When you avoid or minimize them, you make real gains in longer rope life, better service and greater economy. Remember, your Tuffy distributor will be glad to work with you against these and other wire rope hazards.

Here are the "case histories" of the untimely wire-rope fatalities and injuries shown in the picture:

A. Mangled in a wedge socket: Here's a result of improper socketing. It was caused by using a poorly designed or worn-out wedge socket. Failure at the dead end can damage other sections of the rope, too.

B. Rusty road to ruin: Rust—No. 1 enemy of steel—takes a heavy toll in wire rope life. An insidious, silent type of killer, rust often does irreparable damage before it's even noticed. The one-strand break shown here resulted when the rope was allowed to become rustbound through lack of lubrication. Tests show that, with other conditions ideal, properly lubricated rope has up to 10 times the life expectancy of dry rope.

C. The crushing blow: The Sunday punch for this piece of wire rope was delivered by a tractor cleat—just one of many crushing injuries caused by rope being run over or banged into by hard, sharp objects. Even the toughest wire rope is no match for this kind of mistreatment.

D. Strangled by a misfit: When the bearing surface of a sheave is too small for the rope diameter, pinching action quickly destroys the rope — especially when it's overloaded. The victim shown here was knocked out in just 1½ hours of service.

E. Apparent suicide: This rope jumped out of sheave and was soon destroyed by pulling around the shaft. Actually it was a case of sudden slack which threw the rope out of the sheave.

F. End of the line came quickly for this rope as the result of operating over a sheave that did not turn. Note the exceptionally heavy abrasion on one side of the rope. Sheaves should be checked thoroughly and often.

G. Victim of the "bends": Excessive bending of wire rope accelerates wear. Generally, more flexible ropes are used as bending stresses increase (with decrease in tread diameter of sheave or drum). If a rope is operated on a sheave too small for its bending characteristics, early failure is certain. Through an exhaustive series of bending tests, Union Wire Rope engineers have compiled data that you can use to assure getting the rope construction that will give you the longest service life. Ask about it.

H. On the "blink" from a kink: This open kink resulted from mishandling of rope. Guard against kinks by proper winding on the drum. Never pull a loop smaller. Always enlarge it, then straighten out the rope.

I.-L. Crushed and worn from "beatings on the drum": Even under normal operating conditions, drum wear gives wire rope severe punishment. This wear concentrates at the cross-over points and at the flange. Excessive drum crushing results from operating on small drums, excessive loading and poor winding. Smooth drums are not recommended. Here are typical "drum beatings":

- **I. Cross-over wear.**
- **J. Cross-over crushing on drum.**
- **K. Drum crushing from poor winding.**
- **L. Drum-crushing from small drum.**

Although drum wear cannot be eliminated, its effects can be greatly reduced. Under properly engineered procedures, two and three times the service can be obtained from the same line by improving drum conditions. Union Wire Rope engineers will help you with this problem. Get in touch with us for more information.

58-1

Tips

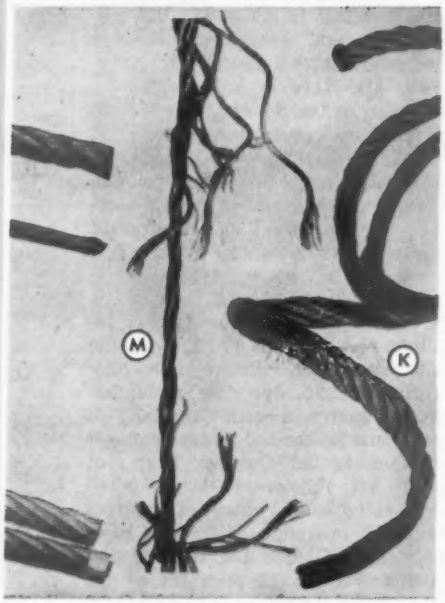
Be Sure You Use BALANCED Wire Rope

You hear a lot about extra strength in wire rope. There is no trick to designing wire rope with very high strength. But — there is nothing to be gained if high strength is put in to the exclusion or subordination of other qualities that are just as important as excessive strength.

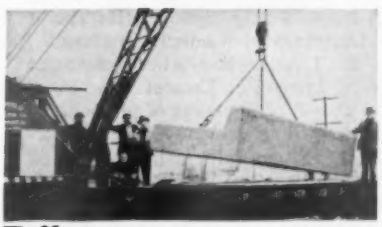
For example: the life of a dragline depends on its resistance to abrasion. When it breaks, as a result of continued exceptionally hard digging in abrasive materials, the owner finds maintenance cost of the dragline increasing. Hard-drawn rope tends to act as a spring. As wear progresses, it arches over the crown of the strand. Repeated flexing of this too-strong arched wire causes early failure. So the drag rope must meet a condition where strength is not the major factor in resisting abrasion.

Every one of the Tuffy Special Purpose Ropes has a different ratio of strength to other properties necessary for longest life, most efficient operation and lowest maintenance expense. Your Union Wire Rope distributor has the BALANCED rope for every application.

Tuffy Special-Purpose Ropes are tailored & BALANCED for special uses



M. Overloaded — soon exploded: The rated capacity of a wire rope is based on the breaking strength (catalog) divided by a safety factor applicable to the type of service or use. The grade of steel, type of construction and size of the rope determine tensile strength. It must be properly related to the loads it will carry, or costly and dangerous early failures are likely to occur.



Tuffy BALANCED Slings & Hoist Lines

Top-performing team in every type of materials handling. Tuffy Slings are made of a patented, machine-braided fabric; stays extra flexible, can't be seriously hurt by knotting or kinking. Tuffy Hoist Line is a special construction of super flexibility and toughness.

Tuffy BALANCED Scraper Rope

It's flexible enough to withstand sharp bends, yet stiff enough to resist looping and kinking when slack. Moves more yardage per foot because it's specially built and balanced to take the beating of drum-crushing abuse.

Tuffy BALANCED Dozer Rope

Built to give you longer service with less downtime. 150' reels of 1/2" or 9/16" mounted on your dozers allow you to cut off worn sections without wasting good rope. Put Tuffy Dozer Rope on the job and watch costs go down!

Tuffy BALANCED Dragline Rope

Made to give you maximum abrasive resistance with super flexibility. Rides smoothly on grooves; hugs the drum when casting for full load. Consistently dependable in handling any material — wet or dry dirt, sand, gravel, rock, cement or minerals.

union Wire Rope corp.

SUBSIDIARY USS STEEL CORPORATION

2156 Manchester Ave. Kansas City 26, Mo.

Specialists in high carbon wire, wire rope, braided wire fabric, stress relieved wire and strand.

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How Your Tuffy Distributor Can Help You Save Money

Condition of equipment is a big factor in longer rope life and greater economy. Your Tuffy distributor will help you check your equipment and operating conditions to make sure everything is in your favor for getting greatest service from your wire rope. Get in touch with him. And ask him to put your name on his mailing list for FREE Tuffy Educational Bulletins.

PEOPLE

IN THE NEWS

Louisville Cement Company elects new officers

Martin Baker Mallon Hill

BOYCE F. MARTIN has been named president and chief executive officer of Louisville Cement Co., Louisville, Ky., succeeding Eugene D. Hill who has been elected chairman of the board. John H. Mallon has been appointed senior vice president and Homer Baker has been made a vice president. Harold Irick succeeds Mr. Martin as treasurer, and Robert Gibson and Frank Lovell, assistant sales managers, have become sales managers.

Mr. Martin, who is also a director of the company, had been serving as executive vice president and treasurer since 1942. A native of Atlanta, Ga., he is a graduate of Davidson College, Davidson, N.C., and of the Harvard Business School, where he also was a member of the faculty and assistant dean for seven years. He was professor of economics and dean of the School of Business Administration of Emory University, Atlanta, Ga., before joining Louisville Cement Co.

Mr. Hill has been president of Louisville Cement Co. since 1939 when he succeeded the late William S. Speed in that position. Prior to that time he served as vice president, director and sales manager. Mr. Hill is a graduate of Georgia Institute of Technology.

Mr. Mallon has been with Louisville Cement Co. for all of his business career and has served as vice president since 1944. Prior to that time he had been sales manager. A graduate of Yale University, New Haven, Conn., Mr. Mallon has been active in civic affairs in Louisville for many years.

Mr. Baker, former sales manager, is an alumnus of the University of Kentucky, Lexington, Ky., and has served as president of the Alumni Association of the university.

Mr. Irick joined the company in 1957. He was formerly secretary-treasurer of Kingstone Products, Inc., Detroit, Mich. A graduate of the University of Indiana, Bloomington, Ind., he holds a CPA certificate.

Mr. Gibson has been with the company since 1940 and has been serving as assistant sales manager. He also is a University of Kentucky graduate.

Mr. Lovell, who has been associated with Louisville Cement Co. since 1940, will be in charge of promotional work for the company. He was formerly assistant sales manager.

Other officers of the company are R. K. Hartsock and David E. Willingham, vice presidents, and Roland Whitney, secretary.

Nelson Severinghaus heads Consolidated Quarries

Severinghaus Austin

NELSON SEVERINGHAUS, vice president and general manager, has been elected president of Consolidated Quarries Corp., Decatur, Ga. He succeeds G. A. Austin, who has been named chairman of the board.

Mr. Severinghaus, a graduate of Columbia College, New York, N.Y., with an A. B. degree, and the Columbia University School of Mines as engineer of Mines, joined Consolidated Quarries Corp. in 1925 and became superintendent in 1928. He was appointed general manager in 1943 and vice president and general manager in 1945. Mr. Severinghaus is a past chairman of the Southeastern Section of the American Institute of Mining, Metallurgical and Petroleum Engineers, past president of the Georgia Mineral Society, and presently is regional vice president and member of the executive committee of the National Crushed Stone Association.

Mr. Austin was born in Yonkers, N.Y., and graduated from Cooper Institute, New York, N.Y. He joined the enterprises of A. Fillmore Hyde, New York, in 1926, operating an underground quarry in north Georgia. Two years later he became general manager of Consolidated Quarries Corp., of which Mr. Fillmore Hyde was president, and placed in charge of construction and operation of Rock Chapel plant near Atlanta, Ga. In 1935 Mr. Austin was elected president of the firm. He is a member of the National Crushed Stone Association and served as president from 1946 to 1947.

PCA housing engineer

LUTHER STRANGE, JR., has been appointed district housing engineer for the Portland Cement Association in Alabama and Mississippi. He will make his headquarters in Birmingham, Ala. Mr. Strange attended Marion Institute, Marion, Ala., and the University of the South, Sewanee, Tenn.

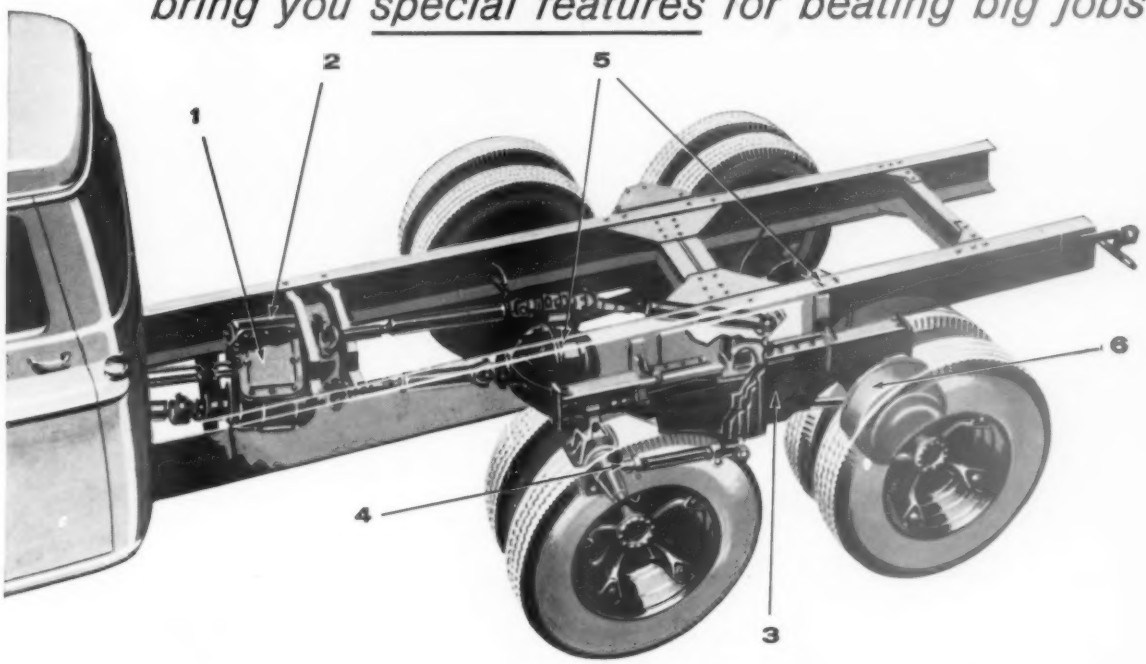
KCSA president

MARLON KING, secretary and general manager of Cedar Bluff Stone Co., Inc., Princeton, Ky., was elected president of the Kentucky Crushed Stone Association at the annual meeting held recently in Louisville, Ky. Richard E. Cooper, secretary-treasurer and superintendent of the Somerset Stone Co., Inc., Somerset, was elected vice president; Miss Margaret McD. Smith, secretary-treasurer of Central Rock Co., Lexington, treasurer; W. D. Milne, president, Kentucky Stone Co., Louisville, secretary; and W. C. Snyder, Frankfort, executive secretary.

(Continued on page 36)

CHEVROLET'S NEW TANDEMS

bring you special features for beating big jobs!



Because of their unique features, Chevrolet's new Triple-Torque tandems are more economical to operate. They're designed to bull their way through the tough spots with tremendous traction . . . with less stress and wear on parts!

Here are some of the design advantages that make Chevrolet tandems tops on big, tough jobs:

1. Chevrolet's exclusive TRIPLE-TORQUE DRIVE is provided by individual propeller shafts driven from a 3-speed auxiliary transmission right in the power divider.

2. Integral 3-SPEED POWER DIVIDER can be shifted instantly to single axle drive for economy or dual axle drive for full traction over rugged roads.

3. The Triple-Torque tandem's articulated WALKING BEAM assures owners of greater ground clearance . . . the utmost flexibility for operation on rough terrain.

4. "TRACKING" WHEELS, because of Chevrolet's rubber-bushed steering torque rods and walking beam ends, stay in alignment on straight roads, follow curves. Increase tire life, driver control.

5. Two built-for-work 15,000-LB.-CAPACITY AXLES with 7.20 to 1 ratios! Choice of standard 7,000-lb. or extra-cost 9,000-lb.-capacity front axle.

6. BIG TWIN-ACTION BRAKES are designed to last! Extra braking power with heavy-duty Hydrovac power brake. Full-Air or Air-Hydraulic brakes optional at extra cost.

Let your Chevrolet dealer show you these, and the many more exclusive tandem features designed to get your big jobs done quickly, dependably and economically! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

CHEVROLET TASK·FORCE TRUCKS

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Research-Cottrell

makes all three

All three Research-Cottrell dust collectors are engineered for specific cement dust applications. Research's experience as the world's largest manufacturer of precipitators is well known—over 2000 installations in many different industries • In addition to straight precipitators, Research-Cottrell also offers electrical-mechanical combination units and Cyclo-trell mechanical collectors. Cyclo-trells are available in both 10-inch and 24-inch tube sizes. For more information on Research-Cottrell's line of dust collecting equipment which has been engineered for the cement industry, write for Bulletin PC.

Research-Cottrell

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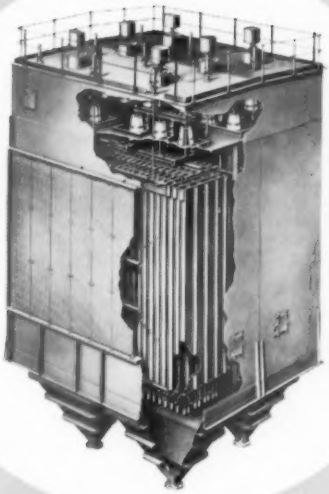
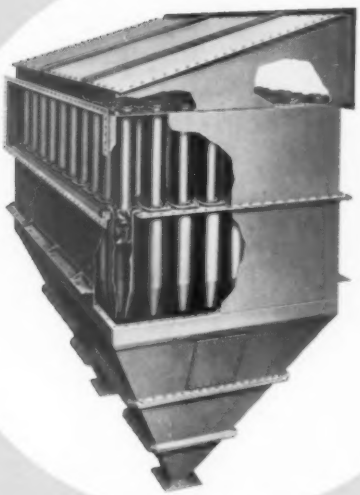
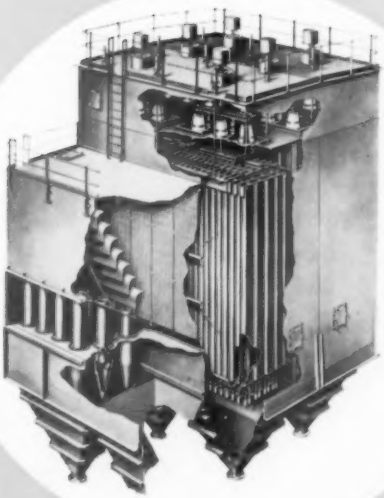


Cottrell
Precipitators



Cyclo-trell
Mechanical Collectors



Combination
Electrical-Mechanical
Collectors

PEOPLE IN THE NEWS

(Continued from page 32)

M. O. Matthews honored

M. O. MATTHEWS, right, executive vice president of Ideal Cement Co., Denver, was guest of honor at a banquet given by the Ada, Oklahoma, Chamber of Commerce several weeks ago. Mr. Matthews, a long-time resident of Ada, witnessed the presentation of a bas-relief of himself to East Central State College. The bas-relief, carrying the inscription: "M. O. Matthews affectionately regarded in this community and nation as a leader in industry," was presented while a group of over 400 people watched. Cris Dobbins, president of Ideal Cement Co., and several other company executives were on hand to honor Mr. Matthews.

Texas Aggregates officers

JOHN H. VAN AMBURGH, sales manager, Wesco Materials Corp., Dallas, Texas, was elected president of the Texas Aggregates Association, Austin, Texas, at the joint meeting of the TAA and the Texas Ready Mixed Concrete Association held recently in San Antonio. Mr. Amburgh succeeds Allan F. Cunningham of F. M. Reeves & Sons, Inc., Odessa. L. Ed Lee, Corpus Christi, was elected vice president and Robert G. Pyle, Dallas, secretary-treasurer. Ray L. Cain was re-elected executive secretary.

Directors of the Texas Aggregates Association are John H. Langston, New Braunfels; George G. Smith, Houston; L. P. Gilvin, Amarillo; Allan F. Cunningham, Odessa; Grady O. Rogers, Austin; and D. C. Harper, Dallas.

National Gypsum promotions

CLYDE A. COOK has been promoted from assistant district manager at Fort Worth, Texas, to district sales manager at Denver, Colo. He succeeds Eric F. Grosse, who has been transferred to the New Haven, Conn., office. Osman E. Osterander, formerly plant warehouse superintendent, National City, Mich., has been named production superintendent at the plant. John L. Smith, maintenance foreman, has been promoted to plant warehouse superintendent, and Neil Brevord, warehouse foreman, replaces Mr. Smith as maintenance foreman.

Byron Pyle KVS president

BYRON PYLE has been elected president of Kennedy-Van Saun Manufacturing & Engineering Corp., New York, N.Y., to fill the vacancy caused by the sudden death of Fred O. Reedy on February 24. Mr. Pyle has been associated with the company for 13 years, having served as assistant to the president, vice president and executive vice president.

(Continued on page 38)

OBITUARIES

Eugene Blum, chairman of the board of Coplay Cement Manufacturing Co., Coplay, Pa., died March 19 after a short illness. He was 93 years old. Mr. Blum came to the Uinted States from Germany in 1882. Shortly after joining Coplay he was made a member of the board of directors and served as president before becoming chairman of the board. Mr. Blum had remained active in the company until the time of his death and had presided at the February meeting of the board of directors.

Adam John Miller, retired manager of the Green Bag cement division of Pittsburgh Coke & Chemical Co., Pittsburgh, Pa., died March 20. He was 74 years old. Widely known in the cement industry, Mr. Miller had been manager of the division for 25 years.

Edward S. Bixler, founder of the Limestone Products Corp. of America, Newton, N.J., died March 30 in Lake Lenape, Fla., where he had been residing for the past few years. He was 79 years old. Mr. Bixler, a native of Pennsylvania, had founded the company in 1919 and served as president until 1948, when he was elected chairman of the board.

Charles E. Wood, owner and operator of the Charles E. Wood Co., Milwaukee, Wis., designers of sand and gravel processing equipment, died suddenly on March 27. He was 61 years of age. Well known in the sand and gravel industry, Mr. Wood was a native of St. John, New Brunswick, Canada, and had been a resident of Milwaukee since 1935.

Charles Scott Haley, nationally known mining engineer and authority on gold bearing gravels, died April 12 in Nevada City, Nev., after several weeks of illness. He was 74 years old. Mr. Haley, who served as mining consultant in many parts of the world, was author of a paper entitled "The Gravels of the Sierra Nevada." He was a native of Newark, Calif., and a graduate mining engineer of the University of California.

Milo Howard, operator of the Howard Sand and Gravel Co., Columbus, Ohio, for 20 years, died March 8. He was 85 years old.

Elmer Ellsworth, sales manager for Western Lime Products Co., South Pasadena, Calif., died March 17. He was 58 years of age.

Harry G. Hinson, secretary-treasurer of the Bessemer Limestone & Cement Co., Youngstown, Ohio, died March 22 after a two-month illness. He was 64 years of age and had been associated with Bessemer for 27 years.

Enter 1215 on Reader Card

CAT LOWBOWL SCRAPERS lower the cost of stripping overburden!

Pushloaded by a husky D8, this Cat DW21-No. 470 LOWBOWL Scraper is one of three used by the C. A. Powley Co. in its gravel pit at Valley View, Illinois. The DW21's modern, heavy-duty Turbocharged Caterpillar Engine packs power aplenty for hauling heaped loads fast. The No. 470 LOWBOWL Scraper has a rating of 18 cu. yd. struck, 25 heaped.

THAT'S why outfits like the C. A. Powley Co. use Cat LOWBOWL Scrapers for stripping overburden. Here you see one of three DW21-No. 470 units used in the company's gravel pit at Valley View, Illinois. The overburden varies in depth from 8 to 9 feet. Each DW21-No. 470 Scraper averages 8 trips per hour on 2-mile round-trip hauls. Working with them in the pit are D7 and D8 Tractors which bulldoze material into the loading area, and a No. 977 Traxcavator. The D8 also pushloads the DW21s.

One big reason for the DW21-No. 470 Scraper's high productive capacity is its LOWBOWL design. Caterpillar originated and perfected LOWBOWL design. It provides less loading resistance clear to the end of the bowl. It results in faster loading cycles. No guessing about this—the figures are on record at your Caterpillar Dealer!

These figures will give you a good idea how Cat DW21-No. 470 LOWBOWL Scrapers can lower your costs of stripping overburden. Want to see them? Your Caterpillar Dealer, a source of reliable service and information, will be glad to show them to you. Want a demonstration? He'll arrange one on your job, any time you say!

Caterpillar Tractor Co., Peoria, Ill., U. S. A.

CATERPILLAR

Caterpillar, Cat and Traxcavator are Registered Trademarks of Caterpillar Tractor Co.

STRIP OVERBURDEN AT LOWER COST PER YARD WITH LOWBOWL SCRAPERS

P...D...Q...

H-R Idlers Feature Price, Delivery, Quality

Priced competitively . . .
no extra charge for H-R "know-how"!

Delivered from local stocks . . .
warehoused nationwide for immediate replacement!

Quality design and workmanship . . .
One-shot lubrication from one side through all three pulleys!

Triple grease seal—redesigned to increase maximum service life!

Welded-in pulley heads using latest production techniques!

For information or service, contact your local H-R representative, or Hewitt-Robins, Stamford, Connecticut.

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CONVEYOR BELTING AND IDLERS . . . POWER TRANSMISSION DRIVES
INDUSTRIAL HOSE . . . VIBRATING CONVEYORS, SCREENS & SHAKEOUTS

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PEOPLE IN THE NEWS

(Continued from page 36)

John R. Romig succeeds Wilson Hanna as chief chemist

JOHN R. ROMIG, left, has been appointed chief chemist and chemical engineer at the Colton and Mojave, Calif., and Rillito, Ariz., plants of California Portland Cement Co., Los Angeles, Calif. He succeeds Wilson C. Hanna, right, vice president in charge of technical development, who has been with the company since 1903, and will continue as vice president and technical adviser.

Mr. Romig, a native of Bethany, Mo., graduated from Kansas State College, Manhattan, Kan., with a B.S. degree in chemical engineering. He joined the Missouri Portland Cement Co., St. Louis, Mo., in 1941, as quarry superintendent and served in various other capacities until 1943, when he enlisted in the Navy. He returned to Missouri Portland Cement Co. in 1946 as research chemist and remained there until 1957 when he became associated with California Portland Cement Co., working in direct association with Mr. Hanna in the laboratories at the California and Arizona plants.

Mr. Hanna, a veteran of 55 years in the cement industry, has for many years been a member of the American Concrete Institute and the American Society for Testing Materials. In 1948 he received the Sanford E. Thompson Award of ASTM for his paper on "Unfavorable Chemical Reactions of Aggregates in Concrete and a Suggested Corrective," published in the 1947 Proceedings of the Society.

Medusa officers

W. N. LAWSON has been appointed treasurer and assistant secretary of Medusa Portland Cement Co., Cleveland, Ohio. He has been with the company for 35 years. Worth Loomis, who joined Medusa early this year, has been named secretary to succeed the late Fredric Pickford, and P. G. Dawson, vice president and treasurer for the past 22 years, has been made vice president of finance.

(Continued on page 41)

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Nothing like it on tracks ...in design or performance

model 12 PAYLOADER®

Years of Hough development and testing bring you this model 12 "PAYLOADER" that is years ahead of the field. It's the first built-as-a-unit tractor-shovel, completely designed for shovel work instead of a tractor attachment. It outperforms much larger units and is a driver's dream in ease-of-operation, easy riding, visibility and safety.

BALANCE Engine-at-rear is the basic difference. It spreads the weight of the machine and load over the entire track lengths instead of concentrating it on the front idlers. Result — more traction for digging, more stability for faster carrying, smoother riding, less track maintenance . . . PLUS the ability to work in soft spots where others would bog down.

SPEED Power-shift transmission and power-steer permit instant on-the-go shifting and steering that is fast and almost effortless. There's no pulling and pushing, no foot brakes. There is instant response and speeds up to 10 mph forward *and* reverse.

VISIBILITY Driver is comfortably seated up front where he can see what his bucket is doing and where he is going. He is also spared the bouncing action of conventional rear-seated locations.

For tractor-shovel performance and ease of handling like you've never seen before, ask your Hough Distributor about the model 12 "PAYLOADER". Ask him about Hough Purchase and Lease Plans too.

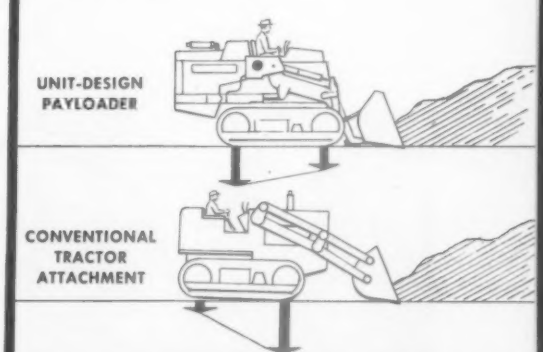
Modern Materials Handling Equipment

THE FRANK G. HOUGH CO.

LIBERTYVILLE, ILLINOIS

SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY

Rear engine mounting distributes weight over entire track length . . . gives you more traction and stability for digging, carrying and dumping.



THE FRANK G. HOUGH CO.

705 Sunnyside Ave., Libertyville, Ill.

Please send more information on the outstanding 1¾ cu. yd. model 12 "PAYLOADER".

Name _____

Title _____

Company _____

Street _____

City _____ State _____

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OLIVER

OL-175 POWER-LOADER

"We now load and stockpile 125% faster,"

says highway superintendent

OL-175 Power-Loader—newest in the field, with 109 gas or 133 diesel net engine h.p. New foot controls provide fast forward-back travel changes with quick speed response. Other features include 4-wheel drive with 2-wheel drive for traveling, power brakes, power steering, torque converter. Equipped with 1½-yd. bucket, dozer and other attachments.

The Smithtown Highway Department of Long Island, New York, has added speed and economy to their operations with an Oliver OL-175 Power-Loader, according to M. B. Kondenar, Supt. of Highways.

With its combination of a big 1½-yd. bucket and its speed in getting around to scattered stockpiles in their ¼-mile-long yard, the OL-175 keeps work moving at a fast clip—125% faster than with previous equipment. And the "go-anywhere" ability of the OL-175 means that they handle many other jobs around the area at a big saving in time and cost.

Says Mr. Kondenar, "We particularly like the fast, simple, easy operation...power brakes and power steering. And the foot throttle provides much better control than with loaders without this outstanding feature."

A demonstration of the OL-175 will convince you of the savings you can make with this versatile rig. Ask your Oliver distributor.

OLIVER **THE OLIVER CORPORATION**

Industrial Division, 19300 Euclid Ave., Cleveland 17, Ohio

a complete line of industrial wheel and crawler tractors and matched allied equipment

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PEOPLE IN THE NEWS

(Continued from page 38)

Vice president of sales

STANLEY H. HOHE has been appointed vice president in charge of sales for the Marble Cliff Quarries Co., Columbus, Ohio, according to an announcement by Richard Ninde, president. Mr. Hohe has been with the company for the past three years as a sales executive in the construction division. A graduate of Miami University, Oxford, Ohio, Mr. Hohe previously served with the France Stone Co., Toledo, Ohio, for 12 years.

Mr. Ninde also announced that the sales department will continue under the direction of the following managers: Frank Longabaugh, commercial division; William Margraf, agricultural division; William C. McMurray, ballast division; and Charles Rarey, metallurgical and lime division.

Walter Coleman retires

WALTER H. COLEMAN has retired as Arizona sales manager of Arizona Portland Cement Co., Phoenix, Ariz., after 30 years of service. He has been in charge of the sales department since 1949 and will be succeeded by D. M. Whitley, who has been associated with the company as a sales representative for the past six years. A native of Seattle, Wash., Mr. Coleman moved to Arizona in 1909. He was with the Arizona State Highway Department from 1919 to 1922 and also operated an engineering-contracting company.

Director of research

VIRGIL S. TADSEN has been named director of research and development of The Gibsonburg Lime Products Co., Gibsonburg, Ohio. He has been in charge of quality control for the past 17 years. A graduate of Toledo University, Toledo, Ohio, Mr. Tadsen will direct research and development of new lime products and methods.

Solite vice president

A. F. OLD has been appointed vice president of the Southern Lightweight Aggregate Corp., Richmond, Va. Mr. Old who was formerly production manager of the Bremo and Leaksville, Va., plants producing Solite lightweight aggregate, will be responsible for all operations of the company and its subsidiaries. R. F. Gibson, in charge of the Aquadale plant of Carolina Solite Corp., and A. C. Ford, director of sales, also have been made officers of the corporation.

(Continued on next page)

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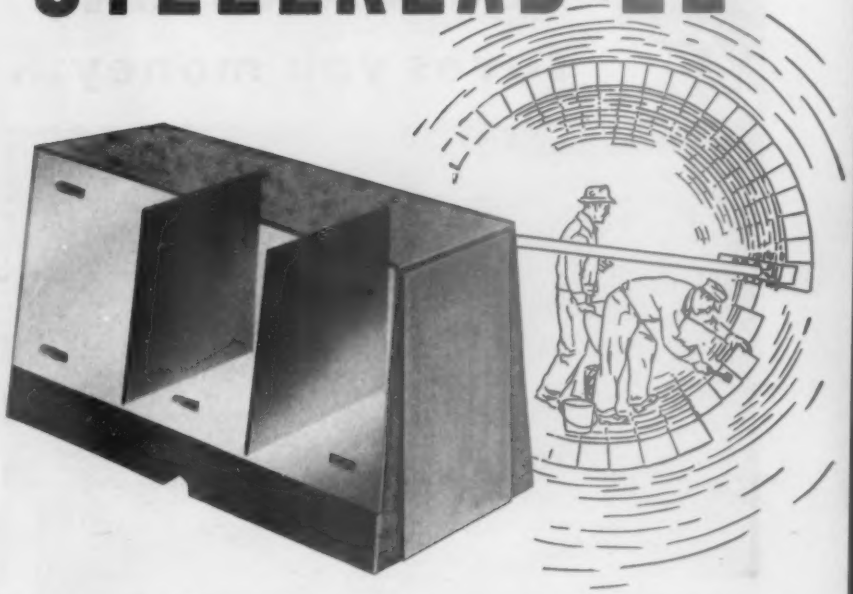
STEELKLAD-EE



The original internally plated brick

Through its program of continuous improvement in basic refractory brick, General Refractories has contributed to the phenomenal growth enjoyed by the portland cement industry.

Early in the period of this expansion, Grefco pioneered the development of basic brick. During the nineteen forties, Grefco STEELKLAD brick provided increased spalling resistance and still better refractory quality. And last year, continuing research and testing produced STEELKLAD-EE, Grefco's original, patented, internally plated brick for portland cement kilns. STEELKLAD-EE has now proved itself in numerous applications where it has demonstrated 25%-50% longer life than other basic brick. Its superiority has won a substantial and growing portion of the basic market.

The cut-away view above shows how the STEELKLAD-EE internal steel plates are molded right into the brick itself, making three bricks of one. These smaller refractory units are tremendously more resistant to the spalling and peeling actions characteristic of most basic brick on exposure to cyclical heating and cooling.

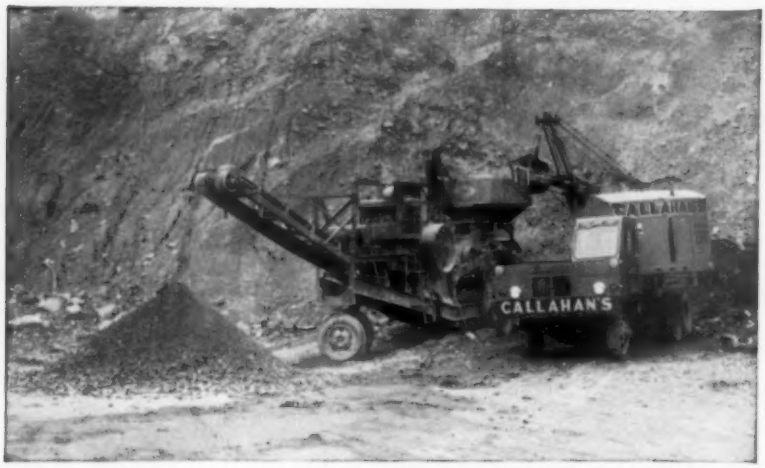
For expert advice on the applications of this outstanding new basic refractory in the portland cement industry, please consult your local Grefco representative. STEELKLAD-EE bricks are available at Grefco plants in Baltimore, Gary, Los Angeles, and in Smithville, Ontario.

GREFCO

GENERAL REFRACTORIES COMPANY
Philadelphia 2, Pa.

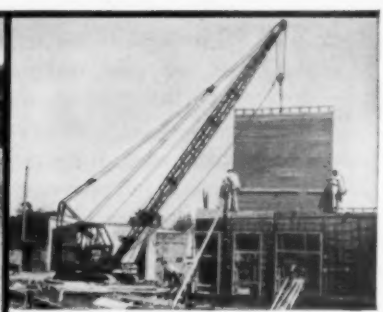
A COMPLETE REFRACTORIES SERVICE

How BANTAM saves you money...



IN THE PIT . . . users get production up to 100 cu. yds. per hour digging sand or gravel with the full-revolving speed of a BANTAM shovel or dragline. This T-35 BANTAM shovel with dumping height up to 14'11", feeds a portable crusher and "doubles" on scattered assignments. With its amazing versatility and the mobility to go quickly from job to job, BANTAM offers you low purchase price, low operating costs and the big production to outwork many larger and costlier rigs.

IN THE YARD . . . a BANTAM Self-Propelled (with complete one-man operation) is the ideal machine for loading trucks and hoppers. Clamshell delivers up to 80 cu. yds. per hour with fast accurate spotting and easy maneuvering.



ON THE SITE . . . for handling concrete forms, pouring concrete and other tasks, a crawler-mounted BANTAM assures solid footing in soft mud or sand with ground pressures as low as 2½ lbs. per sq. in. Maneuvers easily in tight spots.

BANTAMS are available on 3 different types of mountings with lifting capacities up to 8 tons. All BANTAMS work with 10 different quick-change attachments. BANTAM is the most job-proved rig in the industry. Write for literature today.

SCHIELD Bantam Co.

World's largest producer of truck cranes and excavators

216 Park Street, Waverly, Iowa, U.S.A.

RP-186

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PEOPLE IN THE NEWS

(Continued from page 41)

Floyd Buffington retires

Kringel Buffington

FLOYD J. BUFFINGTON has retired as vice president of production for New York Trap Rock Corp., West Nyack, N.Y., after more than 22 years of service. He will be succeeded by John R. Kringel, who has been serving as assistant vice president since 1956.

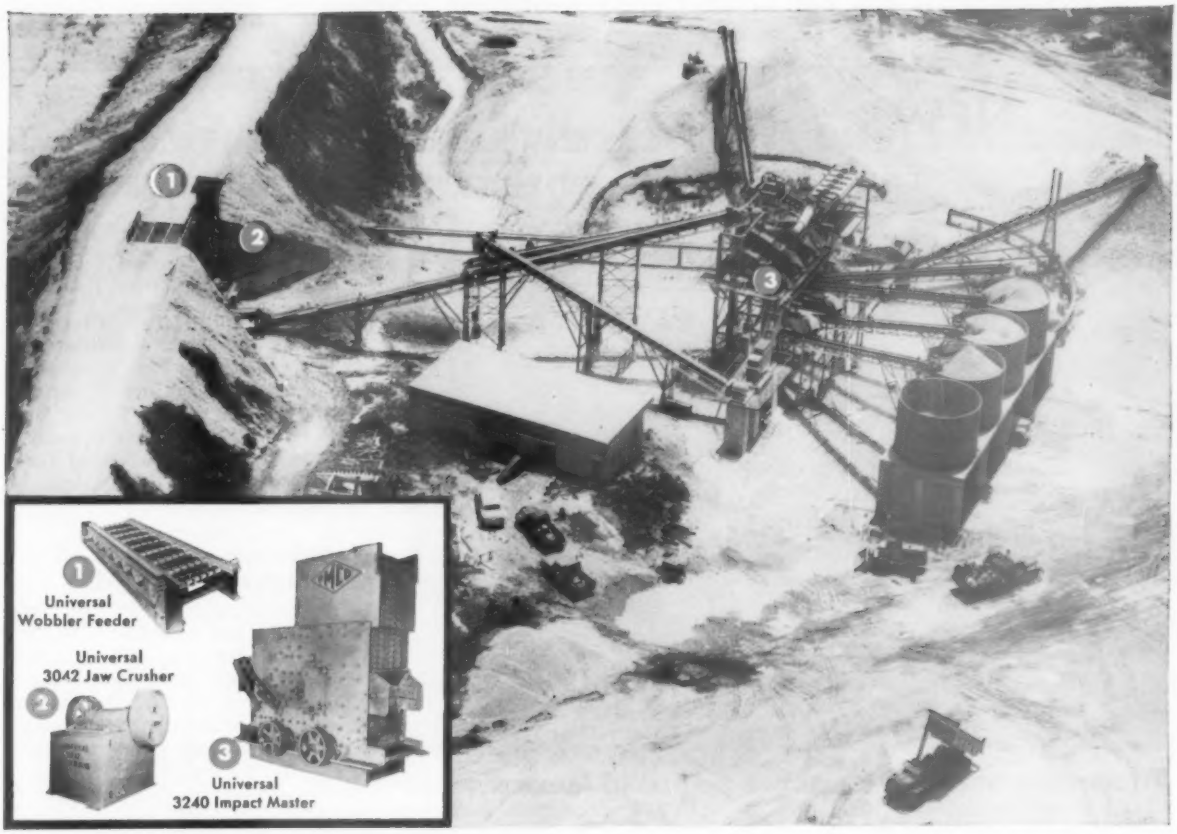
A native of Berkshire, N.Y., Mr. Buffington graduated from the University of Rochester with a B.S. degree in chemistry. Prior to joining New York Trap Rock Corp. in 1935, Mr. Buffington served as vice president of the Hudson Brick Co., Washington, D.C. He also was vice president of the Core Joint Concrete Pipe Co., Irvington, N.J.

Mr. Kringel, who has spent most of his engineering-construction career in the Philippines, the Orient and Central America, is a native of Denver and a graduate of mechanical engineering of the University of Colorado. After service in the U. S. Navy during World War II, Mr. Kringel served as a consultant to aggregate producers and ready-mixed concrete industries in several western states. Later he joined the Utah Construction Co. where he designed and constructed an aggregate and concrete plant in Victoria, Australia. Upon completion of the project, he returned to the San Francisco office and was named assistant to the vice president of operations. Mr. Kringel joined New York Trap Rock Corp. in 1954 as superintendent of the Haverstraw plant.

Kaiser development engineer

J. FRANK HENDERSON, minerals industry design and construction specialist, has joined Kaiser Engineers, Oakland, Calif., as a development engineer of the minerals division, serving the metallic and nonmetallic minerals fields throughout the United States and Canada. Mr. Henderson was formerly superintendent of a potash plant in the Southwest, and for many years has specialized in both field and sales engineering for processing potash, cement, copper, lead, gold and uranium.

END



"Universal equipment is the backbone of this new 'show place' aggregate plant"

says Saunders A. Dukes, general superintendent of the R. H. Wright & Son plant, Fort Lauderdale, Florida

"This plant was built to provide a high hourly turnout of specification stone with the most economical use of men and machinery possible.

"The crushing and feeding components, bought from Universal, were selected after careful comparison of all available machines. The result is a well integrated, highly efficient plant which can crush, screen, wash and deliver 400 tons of material per hour.

"We're working with porous, coral limestone mined from water by dragline. First, the stone is passed over our 9" Universal Wobbler Feeder set at an uphill incline of 7° to hold back material for thorough separation. We use a variable speed drive with 15 HP. The bars of the feeder bed are set in alternate vertical and horizontal positions and spaced 3½" apart.

"Presently, we dump 225 tons per hour onto the feeder bed. As the bars rotate the load is carried forward. Oversize is fed into our primary crusher, a Universal 3042 jaw crusher. Material 3½" and under sifts through the Wobbler bar openings and joins the material from the jaw crusher on a belt conveyor leading to a primary screening tower. Here the load is divided between two 3-deck, 5' and 14' screens. Oversize from the screens goes to our 150 HP Universal 3240 Impact Master for secondary reduction.

"The entire operation is electric and can be operated by one man from a central location.

"No general maintenance has been required on the Wobbler Feeder or the 3042 jaw crusher."

Here is powerful evidence of Universal's equipment superiority. Mr. Dukes chose Universal as the backbone of his plant because its efficient performance economically produced the large quantities of specification stone required.

Universal equipment will do the job as well for you. Just tell us the material you're working with and your requirements. Our engineers will study your operation and show you how Universal equipment, alone or in combination, can give you dependable, economical production. Address your requests to:

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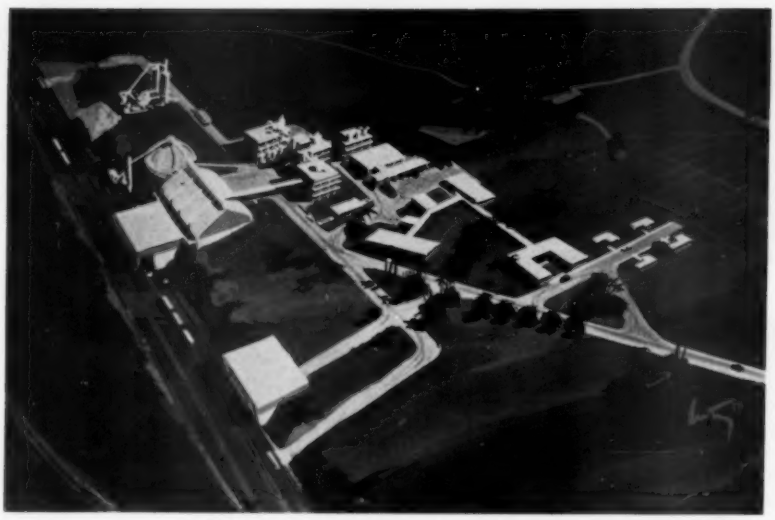
INDUSTRY NEWS



Triple superphosphate plant to be first in Mexico

GUANOS Y FERTILIZANTES DE MEXICO, S. A., has contracted for the construction of a 150-tpd. granular fertilizer plant near Coatzacoalcos, Veracruz. Designed and engineered by Dorr-Oliver, Inc., the plant will employ the Dorrco granular fertilizer and strong phosphoric acid processes.

At upper left in the drawing are the sulfuric acid plant and sulfur and phosphate rock unloading and storage facilities. Open-air industrial buildings near center are the phosphoric acid plant and triple superphosphate production section with storage building for latter at left.

Phosphate rock imported from Florida will be used at the plant, which has been scheduled tentatively for startup early in 1960. It will be the latest of the company's many operations throughout the Mexican states.

Stone firms merge

FOND DU LAC STONE CO. and A. A. Behnke Stone Co., Fond du Lac, Wis., have merged, and will continue operations as Fond du Lac Stone Co., Inc., with A. A. Behnke as president. Owners and directors of the merged company are Mr. Behnke, Haakan Erickson, G. B. Hanson, A. W. Hielsberg and C. L. Ludden.

Organized 30 years ago by Torsten Johnson, who died in 1956, Fond du Lac Stone Co. had Mr. Behnke as an employe for many years. When he left the company in 1956 to form his own business, he was serving Fond du Lac as vice president-general manager.

Gets dam contract

AMERICAN CEMENT CORP., Los Angeles, Calif., has been awarded the contract to supply 3,000,000 bbl. of cement for construction of the Glen Canyon Dam. The U. S. Department of the Interior said that American Cement submitted a bid of slightly less than $3.25 a bbl. The 700-ft. high dam will be located in north central Arizona. Cement deliveries will be required over a five-year period, beginning August, 1959. American Cement will build its new plant at Clarksdale, Arizona.

Blasting begun

THE MOLINE CONSUMERS CO., Moline, Ill., began blasting during April at the site of its new quarry on Vandruff's Island. Stripping of the overburden took place in late winter, and the first rock produced was used around the plant and in building a road to Highway 67 for the firm's trucks. A portable crushing plant is being used at the quarry.

Materials firm buys plant site

HENRICO MATERIALS CORP., Richmond, Va., purchased a 468-acre site to be used for sand and gravel operations. Chartered January 27, the corporation paid $350,000 for the land. John Twohy II is president of the firm and also serves as president of Commonwealth Sand & Gravel Corp.

Permanente adds up impressive sales record

PERMANENTE CEMENT CO., Oakland, Calif., had record sales of $50,756,000 for the 11 months ended December 31, 1957, 16½ percent higher than any previous 12-month year in the company's history. The 11-month report results from an adjustment to a calendar fiscal year.

Net earnings were $6,560,000 or $1.15 a share. This compares with earnings of $7,246,000 or $1.27 a share for the 12-month 1956 fiscal year which ended January 31, 1957. Net earnings for both years were favorably affected by the recent U. S. Supreme Court decision on the method of computing percentage depletion allowance for quarrying operations in the cement business. The effect of the ruling was to reduce income taxes and increase net earnings by approximately $1,100,000 or $.19 a share for the 11 months of 1957. A similar retroactive $1 million, or $.18 a share, also was made in earnings for the 12 months ended January 31, 1957.

Asbestos research facilities are housed in new building

NICOLET INDUSTRIES, INC., Florham Park, N.J., opened a new building in March containing its executive offices and research and development facilities. The 20,000 sq. ft. of expandable space includes office areas, chemical laboratory, physical testing laboratory, engineering section, workshop and pilot area where new asbestos and glass fiber products will be developed and new processing concepts evaluated. Included in the space is Modiglass Fibres, Inc., a Nicolet component.

(Continued on page 46)

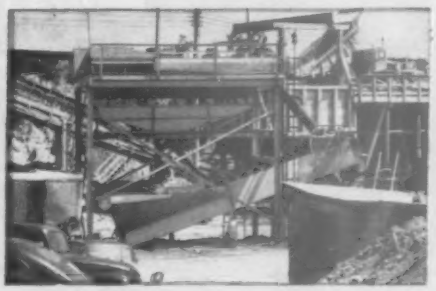
"We are very happy . . .

WITH OPERATION OF OUR EAGLE WASHING EQUIPMENT. MAKING MARKETABLE SPECIFICATION SAND ECONOMICALLY" Wm. Ross, Asst. Mgr., SUPERIOR STONE CO., Raleigh, N.C.

With only an Eagle single 24' Water Scalping-Classifying Tank and a 44" screw dia. x 32' single screw Fine Material Washer Classifier-Dehydrator, the Belgrade Plant of Superior Stone Co. is turning out well over 800-tons per day of specification sand. Wm. Ross, Asst. Manager, in foreground below, and Worth Sellers, Process Engineer, Wearing skullguard, watching Eagle Tank in operation, praise the economical performance and efficiency of their Eagle Equipment.

If you produce concrete or bituminous aggregate now as never before you need the economy and dependability of Eagle Equipment—dependability based upon 86 years of experience.

SEND FOR NEW 48 PAGE CATALOG 58



SCREEN ANALYSIS

Screen Size	Feed	Product	Specification
⅜"	100%	100%	100%
#4	99	99.5	95-100
#8	90	88.5	80-100
#16	78	65.6	45-95
#30	63	48.7	25-75
#50	46	26.3	8-30
#100	14	4.6	.5-5
		FM 2.67	

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Chicago, Burlington & Quincy
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Clinchfield
Delaware & Hudson
Denver & Rio Grande Western
Detroit, Toledo & Ironton
Duluth, Missabe & Iron Range
Elgin, Joliet & Eastern
Florida East Coast
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Illinois Central
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Lehigh Valley
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INDUSTRY NEWS

(Continued from page 44)

Expansion plans in early stages

KOSMOS PORTLAND CEMENT CO., Louisville, Ky., a subsidiary of Flintkote Co., will expand productive capacity by 45 percent, according to I. J. Harvey, Jr., Flintkote chairman. This would increase the plant's capacity from 2,200,000 bbl. to 3,200,000 bbl. Anticipating that the expansion would be completed by mid-1959, Mr. Harvey said it is necessary to meet increasing demands in its market area. Plans are still in the elementary engineering stages.

Elmhurst-Chicago Stone Co. observes 75th anniversary

ENTERING ITS FOURTH quarter-century of supplying limestone, sand and gravel and ready-mix concrete to a market area in Cook and DuPage (Ill.) counties, Elmhurst-Chicago Stone Co. officially marked its 75th anniversary May 24. More than 1,000 friends and customers were entertained at the company-owned Woodridge Golf Club, Lisle, Ill., in an all-day outing.

Adolph Hammerschmidt, grandfather of present company heads, founded the firm in 1883, together with Henry Assman. From a small beginning, the company has grown to include, besides the Elmhurst quarry, sand and gravel plants in Winfield and Barbers Corners, the Royal Ready Mix plant at Villa Park, and a 200-acre gravel site at Warrenville. The latter was completed early in May with the construction of an extensive water reclamation system.

George H. Hammerschmidt, Sr., has been president of the company since 1941. Martin H. Hammerschmidt is secretary-treasurer, a post he has held since 1934.

Alpha plant expects midyear opening

ALPHA PORTLAND CEMENT CO., Easton, Pa., indicated in its annual report that its new cement plant at Lime Kiln, Md., is expected to be in full operation by the middle of the year. The plant has a rated annual production of 2,000,000 bbl. The company invested $15 million during 1957 in construction of the Lime Kiln plant and in modernization and enlargement of other plants.

(Continued on page 48)

Calendar of Coming Conventions

June 22-27, 1958—
American Society for Testing Materials, 61st Annual Meeting, Statler and Sheraton-Plaza Hotels, Boston.

July 20-21, 1958—
Expanded Clay and Shale Association, Midyear Meeting, Cosmopolitan Hotel, Denver, Colo.

July 23-25, 1958—
National Crushed Stone Association, Semi-annual Meeting, Board of Directors, Homestead, Hot Springs, Va.

September 17-19, 1958—
Rocky Mountain Minerals Conference (AIME), Salt Lake City, Utah.

Sept. 30-Oct. 2, 1958—
National Sand and Gravel Association, Semi-Annual Meeting, Board of Directors, The Tropicana Hotel, Las Vegas, Nevada.

October 21-22, 1958—
National Slag Association, 41st Annual Meeting, The Mayflower Hotel, Washington, D.C.

October 23-25, 1958—
Mid-America Minerals Conference (AIME), St. Louis, Missouri.

Bulk shipments can be handled faster, kept cleaner and produce bigger profits

2,893 cu. ft. PS-2 Covered Hopper being loaded at Froedtert Malt Corporation, Milwaukee, Wisconsin, makers of Fro-Malt.

SPECIFY

PS-2 COVERED HOPPERS from your railroad

The Pullman-Standard PS-2 Covered Hopper *multiplies* opportunities for bulk shipment savings . . . helps you produce greater profits.

PS-2s are equipped with ample, large diameter circular loading hatches. Workmen aren't handicapped by too few, too small hatches . . . they can load to full car capacity *fast*.

The high circular hatch coaming, designed with a reserve curve top lip, mates with a tight locking, one-piece hatch cover . . . prevents entrance of dirt and weather . . . keeps your lading clean and dry.

Smooth butt-welded PS-2 interiors permit fast, complete unloading. No laps or joints to hang-up lading or trap contamination. Specially designed, conveniently located outlet gates allow the use of mechanical unloading and take-away devices.

All the bulk shipping benefits of the PS-2 are high-lighted in Pullman-Standard booklet J-6489 . . . write for it today.

PS-2s

can produce extra shipping benefits for such minerals as:

- Bauxite Ore
- Calcite
- Cement
- Clay and Bentonite
- Feldspar
- Fluorspar
- Fluxing Stone and Raw Dolomite
- Gravel and Sand
- Gypsum
- Industrial Sand
- Phosphate Rock
- Salt
- Sulphur

PULLMAN-STANDARD

CAR MANUFACTURING COMPANY

SUBSIDIARY OF PULLMAN INCORPORATED

200 SOUTH MICHIGAN AVENUE • CHICAGO 4, ILLINOIS

BIRMINGHAM • PITTSBURGH • NEW YORK • SAN FRANCISCO

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BONDED BUY

an exclusive of your Caterpillar Dealer

BONDED BUY

You *know* what you're buying from your Caterpillar Dealer. On used Cat-built equipment he offers you a "Bonded Buy" backed by his Guarantee Bond up to $10,000—your assurance of satisfactory performance and guarantee of all parts.

Look for the "Bonded Buy" symbol—*your* guarantee of the best buy in used equipment.

Ask your Caterpillar Dealer about his "Certified Buy" and "Buy and Try" guarantees on used equipment, too. For the *safest* buy on the market, see your Caterpillar Dealer.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR

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BEST BUY IN NEW AND USED EQUIPMENT

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(Continued from page 46)

Winners of crushed stone safety trophies

NATIONAL CRUSHED STONE ASSOCIATION honored winners of its 1956 safety contest at its recent convention in Chicago. Representatives of the companies qualifying for the awards were on hand. Some were officers or superintendents in their organizational setup; others were quarrymen elected to receive the trophies on behalf of their fellow employes.

In the top row, left to right, are W. D. Milne, Webster Quarry, Kentucky Stone Co., Irvington, Ky.; Luther Fourman, Plant No. 1, Callanan Road Improvement Co., South Bethlehem, N.Y.; W. J. Wise, Plant No. 4, Southwest Stone Co., Knippa, Texas; John Cox, Watertown Quarry, General Crushed Stone Co., Watertown, N.Y.; H. P. Jones, Auburn Quarry, General Crushed Stone Co., Auburn, N.Y.; E. L. Childs, Pixley Mine, Stewart Sand & Material Co., Independence, Mo.; Henry Patrick, Plant No. 2, Catskill Mountain Stone Corp., Hudson, N.Y.; Ray Vencill, Tyrone Mine, Kentucky Stone Co., Tyrone, Ky.

Middle row, left to right: O. C. Dietschler, Jordanville Quarry, General Crushed Stone Co., Jordanville, N.Y.; G. B. Phillips, Kimballton and Bakerton Mines, Standard Lime & Cement Co., Pearisburg, Va. and Bakerton, W. Va.; R. L. Walker, Cheektowaga Quarry, Federal Crushed Stone Corp., Cheektowaga, N.Y.; O. E. Benson, Oaks Corners Quarry, General Crushed Stone Co., Geneva, N.Y.; Robert Santmier, Eastern Rock Products, Inc., Prospect Stone Plant No. 6, Prospect, N.Y.; W. L. Stanley, Bessemer Quarry, Bessemer Limestone & Cement Co., Bessemer, Pa.; Hiram Towne, Oriskany Falls Stone Plant No. 5 Quarry, Eastern Rock Products, Inc., Oriskany Falls, N.Y.

Bottom row, left to right: Gene Andres, No. 8 Quarry, Columbia Quarry Co., Ullin, Ill.; E. A. Heise, Krause No. 1 Quarry, Columbia Quarry Co., Columbia, Ill.; Stirling Tomkins, Tomkins Cove Quarry, New York Trap Rock Corp., Tomkins Cove, N.Y.; H. H. Kirwin, Eastern Rock Products, Inc., chairman, NCSA Accident Prevention Committee; J. O. Sherod, Bell Mine, Cedar Hollow and Union Furnace Quarries, Lime Division, Warner Co., Bellefonte, DeVault and Tyrone, Pa.; A. W. Heisler, Stafford Quarry, Genesee Stone Products Corp., Stafford, N.Y.; Emil Berry, Avoca Quarry, Jefferson County Stone Co., Inc., Avoca, Ky.; A. W. Zimmer, Jr., Cape Girardeau Mine, Federal Materials Co., Inc., Cape Girardeau, Mo.

Mining engineers enter second year

SOCIETY OF MINING ENGINEERS OF AIME, New York, N.Y., has entered its second year as a constituent body of the American Institute of Mining, Metallurgical, and Petroleum Engineers. New officers are: president, Stanley D. Michaelson, Salt Lake City, chief engineer of Western Mining Division, Kennecott Copper Corp.; president-elect, J. W. Woomer, Pittsburgh, Pa., head of J. W. Woomer & Associates, consultants; eastern regional vice president, Dr. Charles E. Lawall, Cleveland, Ohio, vice president, Chesapeake & Ohio Railway; central regional vice president, G. Donald Emigh, St. Louis, Mo., Director of Mining, Inorganic Mining Division, Monsanto Chemical Co.; western regional vice president, Dr. James Donald Forrester, Tucson, Ariz., Dean, College of Mines, University of Arizona and director of Arizona Bureau of Mines.

(Continued on page 52)

Enter 1213 on Reader Card

"Best machine I've ever seen on this kind of job!"

H. H. RICHIE, QUARRY SUPT.
CHARLES W. BARGER & SON

Hard work in a limestone quarry near Lexington, Va., is the job Mr. Richie is talking about. The machine is a Cat No. 977 Traxcavator. See what he has to say about it:

"We use the No. 977 for a wide variety of jobs. The primary one, of course, is loading trucks. It loads about 600 to 650 tons per day. We have found it to be economical to operate, powerful enough to move large rock and easy to maintain.

"The No. 977 keeps the quarry bottom clean and level so that it drains well. And yet it keeps ahead of the trucks that are hauling. This is the best machine I've ever seen on this kind of job."

The basic reason the No. 977 wins this kind of praise is that it has been built from the tracks up as an excavator-loader—not just a tractor with shovel tacked on. The No. 977 digs in hard, crowds the 2¼-yd. bucket full, fast. On his high, comfortable seat, the operator is in real command. He sees every bucket position. Controls are within easy reach—bucket control a one-hand operation.

Get the full story on the big No. 977—and the two smaller Traxcavators—from your Caterpillar Dealer. And find out about the revolutionary new Side Dump Bucket, available on all size Traxcavators. Let your Caterpillar Dealer demonstrate *on your job*—and show you how he is equipped to back up his sales with prompt service and parts you can trust.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

Side Dump Bucket, available on all size Traxcavators, cuts cycle time, reduces wear because of less turning, lets machine work in tighter areas. Also dumps forward.

CATERPILLAR

Caterpillar, Cat and Traxcavator are Registered Trademarks of Caterpillar Tractor Co.

WANTED—
THE HARD WORK

KOEHRING WORK CAPACITY *in action . . .*

Here are some figures that will interest you:

KOEHRING MODEL	SIZE DIPPER	LIFT CAPACITIES (Crawler ratings based on 75% of tipping load. Rubber-tired machines — 85% of tipping load.)	
205 CRAWLER	½-Yd.	20,000 lbs.	at 10-ft. radius
205 ON RUBBER	½-Yd.	30,000 lbs.	at 12-ft. radius
305 CRAWLER	¾-Yd.	30,000 lbs.	at 12-ft. radius
305 ON RUBBER	¾-Yd.	50,000 lbs.	at 10-ft. radius
405 CRAWLER	1-Yd.	40,000 lbs.	at 12-ft. radius
445 ON RUBBER	(Crane only)	90,000 lbs.	at 15 ft. radius
605 CRAWLER	1½-Yds.	72,300 lbs.	at 12-ft. radius
805 CRAWLER	2-Yds.	104,200 lbs.	at 12-ft. radius
1205 CRAWLER	3-Yds.	190,000 lbs.	at 12-ft. radius

Want more information? *See Koehring distributor.*

Solid footing on soft banks — Loading gravel off the bottom of a water-filled pit, Koehring 405 dragline (above) holds firmly to the edge of soft, loose banks. Stability of its extra-long, extra-wide crawlers shows up to good advantage in conditions like this. Extra stability means extra work-capacity, too. The heavy-duty 405 handles 1 to 1½ cubic-yard dragline or clamshell buckets on a wide work-radius — boom lengths range from 40 to 90 feet. Butt-connected boom is solid, safe. Inserts are easily changed. Check the 405's other work capacities (in chart) — then have Koehring distributor demonstrate what it will do on your lifting, loading, stripping, stockpiling.

Quarry rock — ¾-yard 305 loads out Lannon stone in a Mid-West quarry. It's a rugged rock shovel, with exceptional operating ease. Big 23-inch main-drum power clutch requires only 1/10th the lever-pull of a comparable-size manual clutch — yet, retains "feel" of load.

15-ton handyman — With its heavy lift capacity and high-speed mobility, Koehring 205 truck crane is a handy material-handling rig to have around. It unloads heavy equipment and supplies, installs machinery — converts to ½ to ¾-yd. clamshell or dragline, ½-yd. shovel, hoe.

Big stripper — Look at the work range of this big 1205 high-lift shovel. It digs up to a height of 42 ft.-10 in. at 45° boom angle — dumps at a height of 31 ft.-5 in. That's with a 3-yard dipper on 40-foot boom. *Need more reach?* It also takes a 2½-yard dipper on a 50-foot boom — has 51 ft.-4 in. cutting height, and 40 ft.-10 in. dumping height, at 45° angle! For heaviest digging, the standard 1205 has 3-yard dipper on 30-foot boom. On dragline or clamshell work, it handles 3 to 4-yard buckets on 60 to 170 feet of boom. *Want more facts?* See Koehring distributor for complete story on this big 1205. Call today.

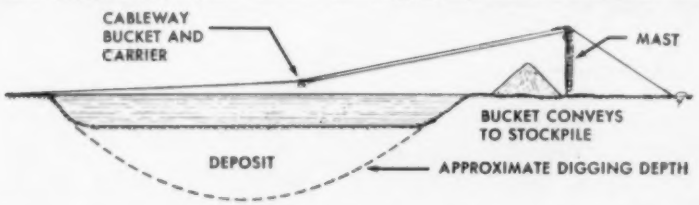
KOEHRING DIVISION OF KOEHRING COMPANY, Milwaukee 16, Wis.

K761

Enter 1202 on Reader Card

The Best Method for Digging Under Water is a Sauerman Slackline Cableway

... R. W. Bisett, Pres., Olean Gravel, Inc.



A Sauerman Slackline Cableway has been excavating material for Olean Gravel, Inc. since 1930. The 1½-yd. bucket has an operating span of 1200 ft., with an average haul of 900 ft. Depth of the pit is approximately 85 ft.

Due to the long haul and digging depth, Olean uses shovels at the shore line to supplement the Slackline and maintain the 200-tph. capacity of their new plant. Mr. R. W. Bisett, President, states:

"No one has yet come up with a better way of getting material from below the water line than Sauerman."

During freezing winter months when the plant is not operating, the Slackline Cableway is kept running to build a stockpile of material. A 110-ft. mast permits building the pile to a height of about 75 ft. All digging, elevating, conveying and dumping operations are handled by the hoist operator. Gravity return of the bucket to the excavation completes the fast operating cycle.

Where long range excavation or deep digging is required, it pays to use a Slackline Cableway. Contact Sauerman for specific recommendations on your job. Catalog C, *Slackline Cableways*, gives more information on this materials handling method.

SAUERMAN BROS., INC. 630 SO. 28th AVE. BELLWOOD, ILL.
LInden 4-4892 • Cable CABEX—Bellwood, Illinois

Crescent Scrapers • Slackline and Tautline Cableways • Durolite Blocks

Enter 1286 on Reader Card

INDUSTRY NEWS

(Continued from page 48)

Excels in investor relations

I. J. HARVEY, chairman of the board of the Flintkote Co., East Rutherford, N.J., at left, receives the first annual award presented by *Investor's Future* magazine for outstanding performance in the field of investor relations in the building materials industry. Making the presentation is Thomas S. Bryan, publisher, who said, in part: "The field of investors' relations and its importance to the future of America in our way of life cannot be overestimated. The continued expansion of this and other fields is dependent upon a continuous flow of capital. Surveys have shown enlightened investors make better citizens and firm believers in free enterprise."

Pavement yardage

AWARDS OF CONCRETE PAVEMENT for March and the first three months of 1958 have been classified by Portland Cement Association as follows:

	Sq. yd. awarded during March	1st 3 mos.
Roads	5,499,508	12,111,632
Streets and alleys	1,583,922	4,608,899
Airports	469,937	874,493
Totals	7,553,367	17,595,024

Opens limestone quarry

IDEAL CEMENT CO., Denver, Colo., is opening its limestone quarry on Texada Island in British Columbia. By July the quarry and crushing plant should be in operation on the island, and shipments of stone begun. Ideal is buying some equipment and the crushed stone business of W. S. Beale, Ltd., Vancouver.

The new operation will be known as Ideal Cement Co. Ltd., Rock Products Division. W. S. Beale will be manager under the direction of Gordon Tongue, Ideal's vice president, Northwestern division.

(Continued on page 58)

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Cedarapids
Built by IOWA

42" x 48" JAW CRUSHER

PRODUCES TREMENDOUS VOLUME WITH *GREATER PROFITS!*

Write, wire or phone for complete details.

THE GREATEST COMBINATION OF HIGH-CAPACITY FEATURES EVER BUILT INTO A JAW CRUSHER!

PEAK PRODUCTION with overhead eccentric, balanced forced feed design. The proper eccentric throw, the angle of the toggle, and the RPM, are engineered to give the *exactly* correct amount of primary breaking in the upper portion of the crushing chamber, *force* the material downward to a second reduction stage in the lower portion, and permit *quick* discharge of crushed material for highest tonnage.

EXTRA POWER with heavier-than-average flywheels insures smooth, even operation under surge loads for high capacities.

TIME SAVING, easy, fast adjustment to produce various sizes. Hydraulic rams easily move the adjusting wedge, also permit fast replacement of the toggle plate when necessary.

STRONG, RIGID one-piece base assures maximum strength. Fully stress-relieved after assembly to eliminate any metal fatigue caused by stress in weldment. The solid, one-piece unit is rigid and free from flaws, fabricated with heavy rib-reinforcements to withstand the shock of punishing loads and prevent flexures that might otherwise cause undue wear on the bearings.

LARGEST ECCENTRIC SHAFT of any 42" x 48" Jaw Crusher. Extra-strong chrome-nickel steel, accurately machined and polished ground for perfect tolerance.

Other job-proved features include: One-piece pitman construction; spherical, self-aligning roller bearings protected by labyrinth seals; split hub flywheels for easy removal; hydraulically removable bearings.

758N

IOWA MANUFACTURING COMPANY CEDAR RAPIDS, IOWA, U.S.A.

THE TREND IS TO ALLIS-CHALMERS . . .

the fastest-growing name

Three models to help you match your job needs.....

TS-360

Fastest-loading big machine in the business... 280 hp moves 20 yd loads at high speed.

In 1957, earth movers the world over bought more Allis-Chalmers motor scrapers than ever before. This growing popularity is the best proof of the productivity and reliability of this outstanding line. There are good reasons for the trend toward Allis-Chalmers construction machinery . . . investigate these advantages before you buy. When you've seen and tried these high-performance motor scrapers, you'll know why more dirt movers every day . . .

Look ahead...*move ahead*...and stay ahead

in motor scrapers

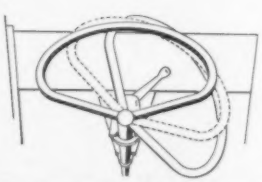
TS-260

A new measure of performance in this size range . . . 200 hp . . . 14 yd . . . full 90-degree turning.

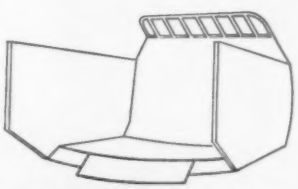
TS-160

True versatility and economy in a utility machine . . . 155 hp . . . 9½ yd . . . turns non-stop in less than 25 ft.

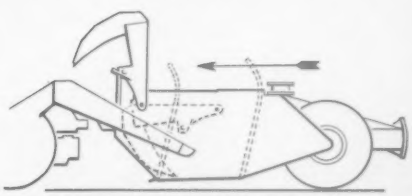
the only line with all these basic advantages in every size . . .



SELECTIVE HYDRAULIC STEERING . . . accurate, sure control at any speed . . . fast, full-swing steering with a 30-degree turn of the steering wheel right or left.



LOW, WIDE BOWL . . . loads full — fast — with low resistance, live action.



POSITIVE FORCED EJECTION WITH HIGH APRON LIFT . . . speeds unloading cycles. Apron opens high as positive ejector dozes out the load . . . clean and quick.

ALLIS-CHALMERS, CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

with ALLIS-CHALMERS

A-C ALLIS-CHALMERS

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P&H

P&H ELECTRICS ARE THE CHOICE OF SOUTHWEST'S MINES

P&H Electrics are setting new standards of production and maintenance economy in Arizona, New Mexico, Nevada and Utah iron and copper mines. For instance, today *three or more* P&H Electric Shovels are working at *each* of 7 out of Arizona's 8 operating copper mines!

The pattern of preference for P&H among copper mine operators is especially significant. Here, industry management must constantly concern itself with selection and performance of the big shovels—the "giants" that require a large capital investment and importantly influence tonnage costs.

Reasons why P&H Electrics are a popular choice among the southwest's mines include such P&H innovations as MAGNETORQUE® and ELECTRONIC CONTROL—each of these *exclusive* P&H features contribute mightily to steady day-in and day-out high production.

Also, P&H users get single source responsibility, as P&H designs, manufactures and applies all electric rotating equipment specifically for electric shovel service.

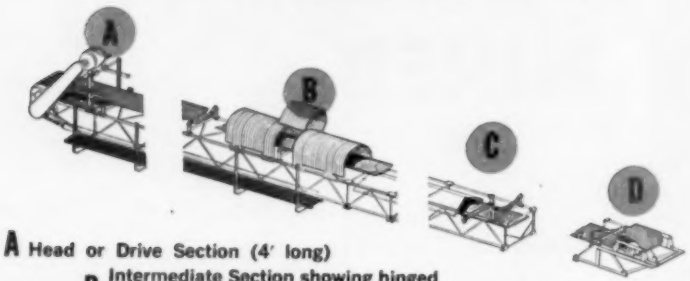
HARNISCHFEGER

Construction & Mining Division
Milwaukee 46, Wisconsin

P&H ELECTRIC SHOVEL LINE: 3½ through 10 cu. yd. capacities

NEW IDEA in prefabricated belt conveyors

JOY READY-SPAN tubular design requires no special engineering



A Head or Drive Section (4′ long)

B Intermediate Section showing hinged cover (20′ –8′ –4′)

C Intermediate Section showing optional return belt cover

D Tail section showing takeup and belt plow (4′ long)

Just tell us the length, the speed, and the material you want to move and we can pull a Ready-Span prefabricated conveyor "off the shelf" for you. You'll get all the economies of pre-engineering plus all the advantages of a conveyor installation tailored to your needs.

Here's how it works: each section, including drive and tail terminals, is made up of four pipes connected by pipe diagonals forming a lace framed truss. Sections bolt together to form a straight, rigid, pipe frame truss.

All accessories—idlers, walkways, cover decking, hoods and supports clamp to the pipe anywhere you wish—without burning holes or using pre-arranged multiple holes that weaken the conveyor.

The Joy Ready-span is available in a variety of drive and take-up combinations for any standard belt width. Promptly available from stock to meet almost any handling condition.

Write for Bulletin 218-27

NEW IDEA in conveyor belt idlers

JOY LIMBEROLLER

Radically different from all other idlers, the Limberoller is a single roll idler consisting of neoprene discs molded to a flexible steel cable. The entire idler turns on its own axis. (1) Only two bearings are used, one at either end, up out of the dirt. (2) The idler supports the belt across its entire width . . . eliminates gaps left by ordinary 3-roll idler. This even support, combined with cushioning "no-bump" action of neoprene discs, can increase belt life 6 times and more. The Limberoller can be installed on *any* belt conveyor, even on existing conveyors.

Write for Free Bulletin 218-27A

WSW L6967-218

JOY *Manufacturing Company, Oliver Building, Pittsburgh 22, Pa.*

In Canada: *Joy Manufacturing Company (Canada) Limited, Galt, Ontario.*

Enter 1224 on Reader Card

INDUSTRY NEWS

(Continued from page 52)

Riverton boosts stone production

RIVERTON LIME AND STONE CO., Riverton, Va., is increasing its aggregate production more than 2½ times by starting up two new crushing plants. The larger plant, at Paris, Va., was acquired recently from Virginia Stone & Construction Co. Its capacity is 300,000 tons per year. The other plant, just south of Amherst, Va., was completed in March and has an annual capacity of 200,000 tons. Jens C. Holm, Riverton's chief executive officer, said the expansion was carried out to supply material for road construction projects near the plants.

Valley Dolomite gets new home

VALLEY DOLOMITE CORP., Bonne Terre, Mo., is occupying a new office building, completed last month. The one-story structure features a pierced masonry screen of concrete block, marking the entrance porch on the west. The underside of the metal roof deck is exposed on the interior. Weighing scales are located on the east side of the building.

Portland cement production

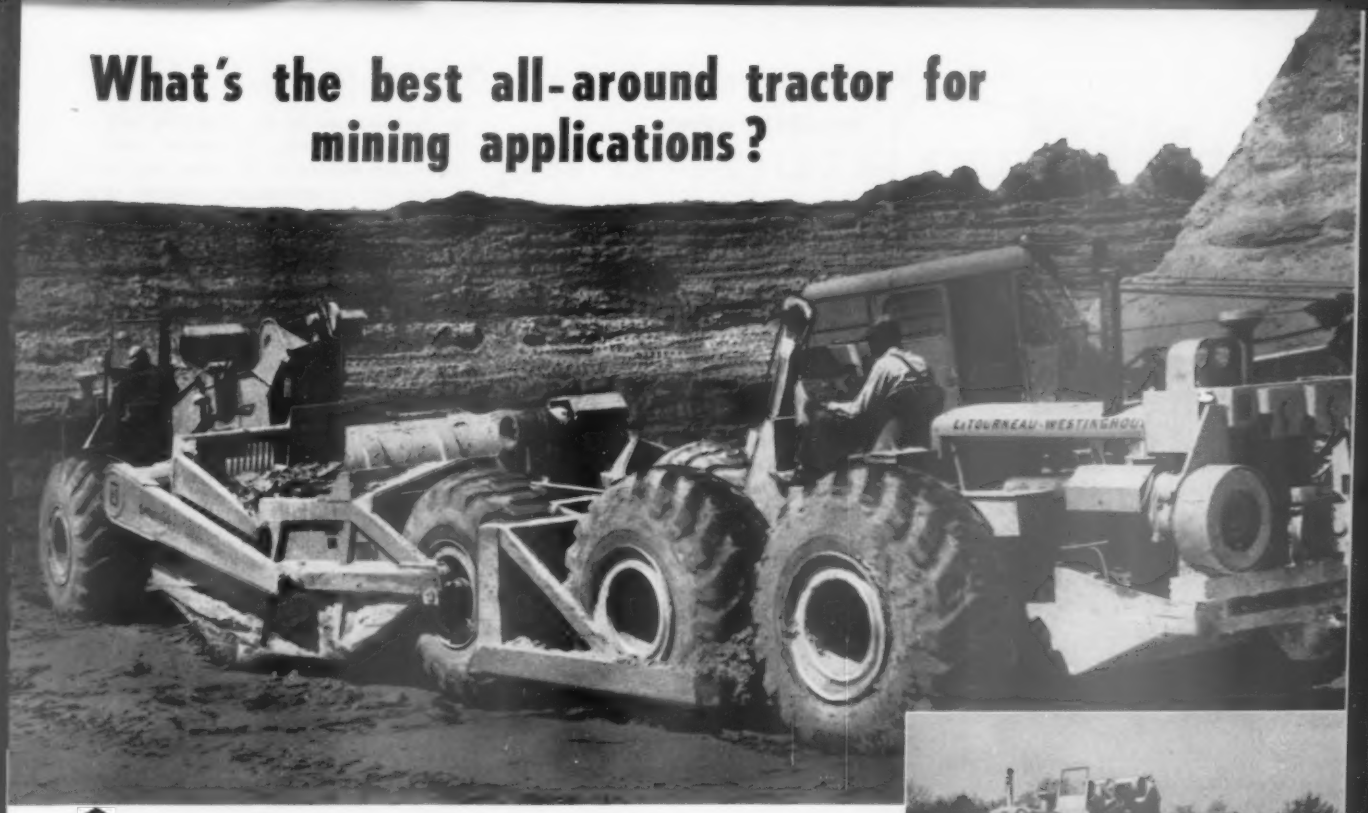
PRODUCTION OF FINISHED PORTLAND CEMENT in January, 1958, as reported by the Bureau of Mines, totaled 18,488,000 bbl., a decrease of four percent from January, 1957. Mill shipments were 13,618,000 bbl., an increase of 15 percent compared with January, 1957, and stocks on hand January 31 were 33,312,000 bbl., 12 percent more than on the same date last year. Clinker production during the month totaled 23,057,000 bbl., a six-percent decrease from the January, 1957, amount. These figures were provided by 153 plants in 37 states and Puerto Rico.

Production of finished portland cement in February, 1958, totaled 14,144,000 bbl., a decrease of 21 percent from February, 1957. Mill shipments for the month totaled 10,944,000 bbl., a decrease of 28 percent compared with February, 1957, and stocks on hand February 28 were 36,392,000 bbl., 12 percent more than those on hand a year ago. Clinker production during February, 1958 totaled 19,538,000 bbl., a 12-percent decrease from the February, 1957, amount. The figures were provided by 149 plants in 37 states and Puerto Rico.

(Continued on page 60)

Enter 1225 on Reader Card

What's the best all-around tractor for mining applications?



"Tournatractor can push-load two scrapers in the same time a crawler pushes one," says Supt. Jim Vaughn, of B & B Construction Co. Stripping overburden for M & M Clays, Inc.'s kaolin pit, rubber-tired tractors helped C Tournapulls load in just 48 seconds.

Wide, low-pressure tires gave good traction and flotation in wide variety of materials encountered on project. Other Tournapull features that helped speed production included 29.9 mph travel speed, exceptional maneuverability, instant-acting electric power system.

Ask A. S. Boone — whose B & B Construction Co. does a lot of contract stripping, mining, and hauling for clay operations in the "kaolin country" around Irwinton, Georgia. He'll give you strong arguments in favor of rubber-tired LeTourneau-Westinghouse Tournatractor®.

High crawler upkeep prompted switch to Tournatractor

B & B once used only crawler tractors. But when the firm's books showed that repair bills on 5 crawlers in 1 year totaled $30,000, Boone recalls, "It was time to look for tractors that would operate in sand, clay and water without high repair costs."

Two Model D Tournapull® scrapers B & B owned had cost only $450 in repairs for over 5000 hours of work. Because Boone and his men figured rock-bottom maintenance costs should run "in the family", they bought 2 new Tournatractors. Here's what's happened:

DOWNTIME: Tournatractor downtime has been only 10 days, compared to 30 per year *per crawler.*

LUBE TIME: B & B's work records show Tournatractor can be lubed in 5 minutes . . . far less than a crawler.

REPAIR COST: When the firm bought its 2 Tournatractors, it also purchased 4 C Tournapulls and a new crawler. *The maintenance cost of all 6 L-W machines has been approximately $4500, that of the one crawler approximately $2200.*

"Does work of 2 or 3 crawlers"

Has replacing 4 crawlers with only 2 rubber-tired tractors affected production? "Yes," says Boone, *"we get a lot more done!* Tournatractor does the work of 2 or 3 crawlers." For a sample of the kind of production B & B's getting nowadays, check the accompanying work report.

Tip: Why not take a close look at *your* crawler maintenance costs . . . then look at Tournatractor. Ask us for full details.

B & B's rubber-tired fleet strips 8,000 yds. a day

One of B & B's recent contracts involved stripping overburden at M & M Clays, Inc.'s kaolin pit at McIntyre, Ga. From top surface to kaolin, the 36' deep overburden included layers of clay-and-sand, pure sand, water-and-sand, and — just above the kaolin — a 3' layer of sticky gumbo. L-W Tournapulls, with Tournatractors pushing, kept production steady throughout the wide range of materials . . . clicked off 2290' cycles in an average of just 3.9 minutes.

C Tournapulls, with 18-yd. Fullpak* scrapers, pushed by husky Tournatractors, loaded in a hurry. Average load time was only 48 seconds; distance was 90'; and payloads averaged 11 to 12 yards of the heavy materials. When B & B used its full fleet of 4 C 'Pulls* and 2 Tournatractors, daily production averaged a big 8,000 cu. yds.

*Trademark CTCP-1573-MQJ-1

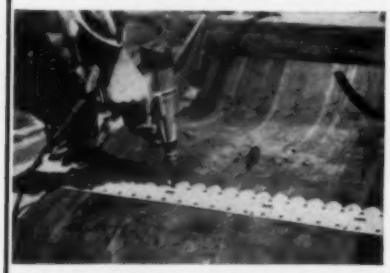
LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

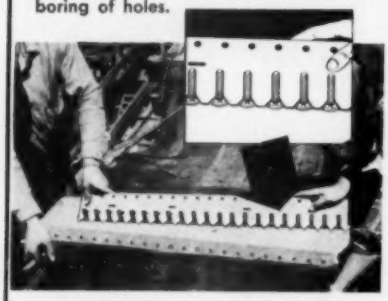
Where quality is a habit

NEW
FLEXCO
POWER TOOLS
CUT APPLICATION TIME
IN HALF

Your two man belt team can now join a belt 30" wide in 15 to 20 minutes . . . using the new FLEXCO Power Tools.



The FLEXCO Power Tool Boring Bit used with electric or air impact tool speeds boring of holes.



New FLEXCO Templet positions bolts for quick joining of belts. Reaching under belt has been eliminated.

Running down nuts is fast with the new FLEXCO Power Wrench used with electric or air impact tool. Two Bolt Breakers are used together to complete the joint.

Ask your FLEXCO distributor or write to us for additional information.

Flexible
STEEL LACING COMPANY

4684 Lexington St. • Chicago 44, Ill.
Enter 1211 on Reader Card

INDUSTRY NEWS

(Continued from page 58)

Volunteer enlarges, improves plant facilities

VOLUNTEER PORTLAND CEMENT Co., Knoxville, Tenn., is concluding a program of enlarging and improving its plant. This included a new crushing plant, with larger gyratory crusher and an additional hammermill; a screening plant to provide minus ½-in. feed to the raw mills, and a belt conveyor system replacing trucks for part of the haul. A fourth kiln increases the plant's clinker capacity 35 to 40 percent and additional raw and finish grinding capacity have been installed. Finally, the electrical distribution system has been revamped to bring it up to modern standards of effectiveness and safety, according to Charles F. Lewis, president.

Speaker cites wide use of vermiculite fireproofing

A RECENT CHECK in Los Angeles disclosed that almost all the new multi-story buildings of Type 1 construction in that city are fireproofed with vermiculite in some form, said G. E. Morris, superintendent of building for the City of Los Angeles. His remarks were presented at the annual meeting of Vermiculite Institute of Chicago, held at the San Marcos Hotel in Chandler, Ariz., March 22 through 27.

Mr. Moore said that the first three months of 1958 broke all construction records in the city's history. He thinks that in the country in general a potential demand exists that will increase.

L. G. McDiarmaid, chairman of the Market Development Committee, announced an increase of more than 20 percent in 1957 sales of vermiculite acoustical plastic, compared with the earlier year. This was due in part to the popularity of the material as an exposed acoustical treatment, in part to its rapidly growing use as fireproofing sprayed directly to steel floor and roof construction.

Other uses for vermiculite were reported. D. J. Boone, chairman of the Agricultural Committee, commented on its expanding market as a soil conditioner and H. W. Steiff, chairman of the Insulation Committee, discussed continuing interest in use of vermiculite loose fill as high temperature insulation. He said the product is performing successfully in kilns, ovens, tanks and a wide variety of applications.

A new roof system consisting of concrete joist framing with a steel welding strip cast into the top chord of the joist was described by C. R. Babb, chairman of the Concrete and Roofing Committee. Galvanized steel sheets are welded to the strip, and a 1 to 6 mix of vermiculite concrete is placed to desired thickness. The under side of the steel sheets is sprayed with vermiculite acoustical plastic. Any type of conduit can be run on the metal sheets and then can be covered with the concrete.

President C. H. Wendel relinquished his post to the new president, J. Brooks Robinson, vice president of Robinson Insulation Co. and of Grogan-Robinson Lumber Co., Great Falls, Mont. Two new directors are Shelton W. Greer, president, Vermiculite Products, Inc., Houston, Texas, and L. G. McDiarmaid, president, Insulation Industries (Canada) Ltd., Vancouver, B.C.

Store silica in mine

ABANDONED LIMESTONE CAVES at Pacific, Mo., are being used by Pioneer Silica Products Co. for storage and washing of silica sand. A front end loader with 4½-ton bucket carries inferior grades of sand off to one side as they come from the washer. High quality sand then is loaded into trucks to be taken to the dryer for final processing and shipment.

Flintkote acquires chimney division

THE FLINTKOTE CO., East Rutherford, N.J., has acquired the assets of the Chimney Division of C. A. McRobert and Son Ltd. of Montreal, Canada. It will be operated as a division of Flintkote Co. of Canada Ltd. with headquarters in Toronto. The exclusive licensee in Canada for manufacture and sale of Van-Packer prefabricated residential chimneys, the division was described as the largest producer of prefabricated chimneys in the Dominion. Flintkote acquired Van-Packer in September, 1956.

(Continued on page 63)

North...south...east...or west...

pit owners cut costs with rugged pivot-steer haulers

From Georgia to Wisconsin... from Virginia to California... pit owners are operating under widely varying job and weather conditions. But there's one thing all pits shown have in common... the type hauler they bank on to cut pit costs. It is the rugged LeTourneau-Westinghouse Tournapull® Rear-Dump.

Wherever they operate, these machines dump clean and fast... clear over banks, or into hopper. Front-wheel drive holds Rear-Dump steady and safe at soft bank-edge. Units have big, wide, all-steel bodies for fast loading and low maintenance. And, go-anywhere 'Pulls* haul through mud or slippery going where conventional haulers would have to call it "quits."

Read these owner-verified reports... then give us a call. We'll be happy to show you how these electric-control Tournapull Rear-Dumps can fit into *your* operations to help *you* cut pit costs. Three sizes: 11, 22, and 35 tons; with 138, 210, 300 or 335 hp diesel engines.

N

Wisconsin gravel pit — In an effort to step-up production and cut hauler maintenance expense, this large gravel pit replaced a fleet of trucks with 3 Tournapull Rear-Dumps — 2 "D's" and a "C". Says pit superintendent, "Most truck bodies are too thin. Our work is also too hard on truck tires, transmissions, differentials, springs, and drive shafts. These rugged L-W units outlast ordinary haul trucks 10 to 1."

Virginia limestone pit — 3 D Rear-Dumps replace 10 trucks... together, haul 1000 tons of rock to crusher per 8½-hr day. Comments owner, "We went through $56,000 worth of trucks in 5 years before we switched to Tournapull Rear-Dumps. These machines are the only thing for hauling rock. Trucks just can't compare." Says operator, "They're as simple to run as a car. I like 'em fine!"

W

E

California quarry — Tough underground tunneling operations required a rugged hauler that could maneuver in extremely cramped quarters, haul over narrow, winding roads. Pit owner's choice — 3 C Tournapulls with 22-ton Rear-Dumps. Unit is shown making continuous 180° turn (with body in dump position) in area just 20'8" wide. Electric controls also contributed to ease of operation and safety.

Georgia kaolin pit — Despite wet, slippery roads, 2 D Tournapulls with 11-ton Rear-Dumps haul sand and red clay overburden 500' to dump in 1 min 24 sec. With electric-hoist, bowl can be lifted for full, instant dump, or held at any angle for slow, precision feeding into hopper. Mine superintendent likes 'em, "cause they're easy to maneuver... pull themselves easily out of soft footing."

S

* Trademark R-1836-MQJ-1

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

SIMPLICITY

GRIZZLY FEEDER

eliminates need of apron feeder and scalper . . .

3' x 10' Model OA—10—A3

Rock can't jam . . . hourly operating costs lowered

The unique design of the Simplicity Grizzly Feeder, which combines feeding and scalping in one operation, eliminates rock jams thus assuring positive uniform flow of material into the crusher.

One operator of a Simplicity Grizzly Feeder says: "... we have used the heaviest type of apron feeders for years and have found it necessary to shut down at least 2 or 3 times a year to hard surface the flights, inasmuch as our material is so abrasive ... we installed a Simplicity (Grizzly) Feeder ... with 1/4" pan and 3/16" liner ... and are glad to report that, AFTER 9 MONTHS OF CONTINUOUS OPERATION, THE FEEDER PAN SHOWS PRACTICALLY NO WEAR WHATSOEVER, and is operating around the clock doing an excellent job of feeding at all times ..."

3' x 12' Model OA—10—A3

The Grizzly Feeder costs less than 50% of the combined apron feeder and scalper ... weighs considerably less ... makes a more compact plant ... and reduces loading height by several feet. While these factors show up so prominently in portable plant production, they are just as effective in a permanent plant installation for the crushed stone, sand and gravel and mining industries.

214

Send for Catalog #571 for complete information on OS-A-VEYOR and GRIZZLY FEEDERS.

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FOR EXPORT: Brown & Sites, 50 Church Street, New York 7, New York

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ENGINEERING COMPANY • DURAND 13, MICHIGAN

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INDUSTRY NEWS

(Continued from page 60)

Expansion at Louisville includes new rotary kiln

LOUISVILLE CEMENT CO., Louisville, Ky., will spend $3 million this year on plant improvements and other capital expenditures, said Eugene D. Hill, president. The two largest projects are completion of installation of an 11 x 390-ft. rotary kiln at its Speed, Ind., plant, and beginning of construction of 12 new cement storage silos there. The kiln is expected to be ready for use this summer.

Macdonald Engineering Co. has been awarded the contract for design and construction of the silos. Measuring 30 ft. diam. x 160 ft. high, the silos have a combined capacity of 205,000 bbl. They are arranged so that both cars and trucks can drive beneath them and be loaded in bulk at two loading stations. Also, there are four packing stations below the silos which will package cement to cars and trucks from any of the bins.

Quarries change owners

HARRY T. CAMPBELL SONS' CORP., Towson, Md., purchased Marriottsville Quarries and began operating them January 1, 1958. The newly acquired quarries are on the Marriottsville Road in Baltimore County, and production will consist of crushed limestone and a flagstone. Price Hurt is superintendent of the operation.

Granulite firm closes

THE GRANULITE COMPANY, Chicago, Ill., has announced closing of business. According to G. H. Doscher, arrangements have been made with H. Bairstow Co., Chicago, to accept his files and data on Granulite ag-slag and granulite, so that any inquiries may be addressed to them.

Plants figure in sale

STATE SAND AND GRAVEL CO., Milwaukee, Wis., acquired four concrete plants when it obtained the operating assets of Kolinski Concrete Co. in an exchange of stock. The concrete company retained ownership of its land, leasing it to the sand and gravel company. Three of the Kolinski officers, W. L. Schunck, Walter E. Patitz and Francis Rausch, will become board members. Mr. Schunck will serve as second vice president and Mr. Rausch, as secretary.

END

WHAT ARE YOUR RESERVES?

•

LET US HELP YOU FIND OUT

•

Coal in Kentucky . . . Uranium on the Colorado plateau . . . Bauxite in the Ozarks . . . Limestone in Pennsylvania . . . Copper in Montana . . . These are but a few examples of the extent of our operations. Throughout the United States and even in many foreign countries we have successfully explored and proved ore reserves for our many customers, and where normal methods have failed, special techniques have been developed. In the Gas Hills Area of Wyoming, for example, we successfully cored the loose sand and siltstone where others had failed by "freezing" the material. Our personnel and equipment are stationed throughout the United States awaiting your call.

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TRIAL SAMPLES

Of World-Famous WHITMORE'S Lubricants NOW IN AEROSOL SPRAY-ON CANS!

HANDI-LUBE LIQUID GEAR COMPOSITION

For open gears, sliding surfaces—exclusive formulas eliminate metal to metal contact, keep wear on the lubricant not the metal—no breakdown even after prolonged use under water—available for every climatic condition—packaged in handy 16-oz. aerosol spray-on containers or in bulk containers—send for a free trial sample.

WIRE ROPE SPRAY LUBRICANT

Exclusive formulas for lubricating and protecting wire rope, chain, springs. Penetrates to the core of wire rope minimizing internal friction and increasing usable life up to 300%—special protective qualities absolutely eliminate corrosion—non-gumming qualities reduce "carry-back"—packaged in handy 16 oz. aerosol spray-on containers or in bulk containers—send for a free trial sample.

65 YEARS OF LEADERSHIP LUBRICATING THE FOLLOWING:

- Open Gears, Dipper Sticks, Cams
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- Wire Rope and Cable
- Hydraulic Units, Torque Converters
- Roller, Ball, and Sleeve Bearings
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Est. 1893

THE WHITMORE MANUFACTURING CO.
LUBRICATING ENGINEERS
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Gravel and quarry operators rely on modern CAT power for the jobs that are hard and have to get done on time!

"Always use Cat power in the shovel. These engines are long on life and trouble-free."
—GEORGE PATTON, President, Calcite Quarry Corp.

"Very well satisfied with low operating cost and high production of our Cat Engines."
—FRANKLIN TURNER, Turner Lime and Rock Quarry

"Fits our dredge for power and size; when you set this Cat Engine, it will hold its RPMs."
—ERNEST HANSON, Supt., Frazer & Sons Inc.

"Like our Cat Engine's dependability and power, and we get real good service."
—JOHN ROFF, Supt., Coon Valley Gravel Co.

LIKE thousands of others, these owners and superintendents use Caterpillar Engines for the tough jobs, because they *must* have dependable power that keeps other equipment working full time.

To amplify just one of the above statements, Mr. Patton of Calcite Quarry Corp. of Lebanon, Pa., has good reason to be sold on Cat power for his shovels. The engine in his Lima, a Cat D11000, was installed in 1933 and is still producing big. Calcite purchased this shovel in 1942 and the engine hasn't required an overhaul by a Caterpillar Dealer since then! And since 1942 it has provided power to load more than 3 million tons of high-calcium rock. For one two-year stretch it operated 16 hours a day around the calendar handling hard rock in choke-dust conditions!

Because Cat power units are reliably rated and built to take the gaff, you often see them widely used on a single job. And for the same practical reasons, you find more and more job-wise contractors buying Cat Engines to *repower* equipment that won't produce as it used to.

Cat Engines feature a 4-cycle design for smooth, efficient power. Fuel nozzles won't foul under changing load conditions, and Caterpillar's exclusive precombustion chambers save money by burning *all* the fuel *all* the time—even low-grade No. 2 furnace oil. The exclusive cast-in cast iron top ring band of the aluminum alloy pistons gives the durability of cast iron and the light reciprocating weight of aluminum for longer life. It all adds up to a power package that won't let you down and costs less to run.

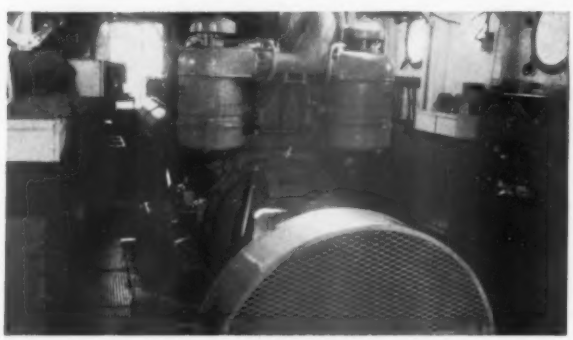
Wherever you buy, Cat power can be supplied. And *when* you buy, Caterpillar Dealer service is assured. So see your nearby Caterpillar Diesel Engine Specialist soon about your power needs. Review your power line-up now and save down time later.

Engine Division, Caterpillar Tractor Co., Peoria, Ill., U. S. A.

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

A Cat D4600 Diesel Engine powers this Chicago pneumatic air compressor, used for drilling blast holes in lime and rock quarry at Shelbina, Mo. The owner of the Turner Lime and Rock Quarry says, "I have increased production and profits since standardizing on Caterpillar products." Quarry is 100' deep and 2 acres big. Cat Engines keep all your equipment working full time.

The Calcite Quarry Corp., Lebanon, Pa., has used the D11000 powering this Lima shovel hard since 1942 — "So," says President George E. Patton, "you can see this Cat Engine has proven its worth, giving us many years of trouble-free service at low operating cost." Rock taken from quarry near Lebanon is used as fluxing and in cement. Heavy-duty Cat Engines have negligible down time.



This modern heavy-duty Cat D397 Diesel drives a 12" Georgia Iron Works pump for dredging operations on a flood control project in North Palm Beach. One reason Superintendent E. R. Hanson bought Cat power was the "reputation of Caterpillar products."

Supt. John Roff, of the Coon Valley Gravel Co., bought Cat Engines for this job near Des Moines because "It's the best engine made!" Besides a D375, a D318 and a D8800, on the job, a Cat D397 Diesel drives an Amsco pump for this sand dredger.

ENGINE POWER BY CATERPILLAR

YOUR CATERPILLAR DEALER

has excellent service facilities to back your engine investment. 844 parts and service outlets throughout 125 countries of the world are strategically located to keep your Cat products earning for you. Here a diesel service specialist checks a fuel injection valve nozzle for proper performance.

Engine Division **Dept. RP6**
CATERPILLAR TRACTOR CO., Peoria, Illinois, U. S. A.

Send me more information about Cat Engines for original power and repowering.

☐ Have your dealer call for an appointment, as I may be in the market for a Cat Diesel Engine or Electric Set. I understand that I am under no obligation.

☐ I am interested in learning more in general about these engines.

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Company _____

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HINTS AND HELPS

Profit-making ideas developed by operating men

Look—no valves

CRUDE BUT VERY EFFECTIVE is this producer's way of controlling the flow of waste water in these 14 in. diam. pipes. Bolted flanges at the intersection are fitted with gaskets — one a blind gasket with a hand hold on the outer edge.

To change the flow of tailings through the pipes he interchanges the circular gasket with the blind gasket, and substitutes the regular gasket in the operating line. When the flanges are drawn up, he is in business without the cost of heavy gate valves.

Special trucks protect crusher by dividing load

WHEN A MIDWESTERN CEMENT MAKER decided to replace his haulage trains with heavy duty trucks, it was discovered that the capacity of each truck was beyond the ability of the crusher to handle it. The cost of replacing the crusher or of reworking the building to install a heavy-duty feeder would be prohibitive and would stop production.

The simple answer to this dilemma was the purchase of special bodies on the trucks, made up in two sections. Then each section could be dumped into the crusher without surging it.

A special truck tilting arm helps the operator to dump each body section slowly when large rock is being hauled, and the hoist can be stopped if the crusher shows signs of lugging under load. Not clearly shown in the picture is an outboard shoe which rests on the concrete curb and stabilizes the truck frame. This is necessary to keep the whole truck from tilting as a large piece of rock shifts the center of gravity as it slides from the truck into the crusher hopper.

Chip screen

SINCE WE INSTALLED a new crusher in our plant we have encountered quite a few chips, slivers and fines. These products were not desirable to many of our customers. However, we were able to solve this problem with the installation of a bar screen between the conveyor under the crusher and the main conveyor.

This screen is made up of ½ x 1½-in. manganese bars lengthwise in a deck 18 in. wide and 60 in. long, with about ½-in. spaces. The screen acts as a chute between the conveyors and gets enough pounding from the oversize to eliminate blanking. Easily 80 percent of the objectionable slivers have been removed.

Jack Tustin
Pasco, Washington

Riffles reduce trough wear to a minimum

ONE WESTERN SAND PRODUCER who used a long steel launder to carry sand 500 ft. from the pit to the washing plant was troubled with rapid wear in the bottom of the trough.

Wear was reduced to an absolute minimum by installing 1¼-in. angles in the bottom of the trough, just like riffles used by gold producers. In addition, side plates were put in to prevent wear in the corners of the trough. As sand builds up in the pockets provided by the riffles it prevents contact of the flowing material against the bottom. Not only was rapid wear stopped, but the operator achieved a more uniform flow of solid materials to the processing plant.

Old rails find new use at gravel plant

OLD RAILROAD RAILS have many uses around a rock products plant for heavy-duty service—they are easily cut and readily expendable.

This western gravel producer used old rails to protect his feeder over the primary crusher from the impact of heavy gravel. The large rock which did not go through the grid were pulled off and discarded, while any rail that was worn prematurely or deformed could be easily removed and replaced.

(Continued on page 68)

US RUBBER CONVEYOR BELTS

Higher speeds, greater loads, longer life —with fewer belt plies!

The unusual thing about this self-propelled loader is the fact that it is equipped with a *4-ply* belt which is turning out a more satisfactory performance than the *5-ply* belt it replaced. This 4-ply belt is a U. S. Rubber Giant® (style EN), 54′ long, and is doing such a good job that the operator is very well satisfied with its excellent performance.

The service is rugged—handling sand and gravel at speeds up to 700 fpm over small pulleys, under severe weather conditions, sun and ozone.

These belts—like all "U. S." belting—are engineered to always assure you of cost-saving performance and durability. Belts to service your requirement are available, right from stock, at your local "U. S." Distributor or write us at Rockefeller Center, New York 20, N. Y. In Canada, Dominion Rubber Co., Ltd.

US RUBBER Mechanical Goods Division

United States Rubber

See things you never saw before. Visit U. S. Rubber's New Exhibit Hall, Rockefeller Center, N. Y.

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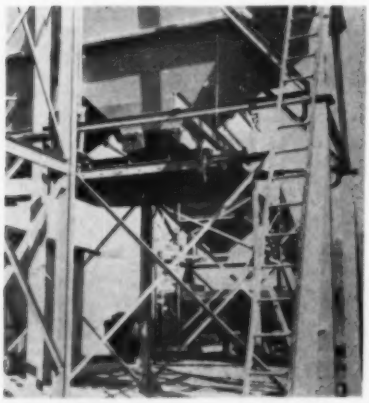
HINTS AND HELPS

(Continued from page 66)



Load long trucks

IN THE WEST, where tandem trailer units are common, producers have the problem of weighing the whole rig without moving any part of the assembly off the scale. However, even with 60 ft. long scale platforms it is often difficult to load a truck to capacity under these conditions.

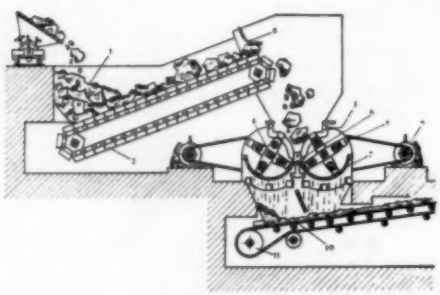
One operator solved the problem by installing a short reversible belt conveyor under the gates of one of his shipping bins. Now the long tandem trailers can be loaded to capacity without leaving the platform of the scale and without disconnecting the tractor unit from the rig.

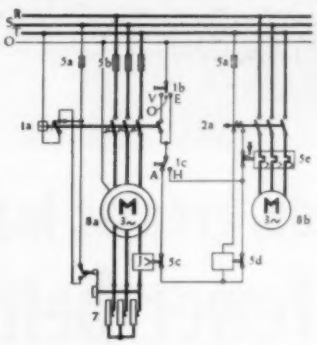
Siding blocks

CORRUGATED SIDING or roofing is usually difficult to handle for the inexperienced maintenance man or jack-of-all-trades in a rock products plant. Corrugated sheets can be made of asbestos concrete, galvanized or coated metal or of one of the newly developed plastics, all difficult to install.

An enterprising mechanic who had to work with these corrugated materials developed a handy set of die blocks which seemed to make the job much easier. One was a length of 2 x 4 cut on a band saw in the contour of the corrugations, and another, a much shorter piece with the same contours. These pieces enabled him to level the roof, pull nails and to hold down overlaps as he worked. Another piece of wood was rounded on the edge to fit the valley of a corrugation, and let him pull nails without cracking or denting the material.

Automatic control system boosts crusher output





THE PRIMARY CRUSHER in a West German cement mill is a double shaft hammermill, with each rotor driven with a three-phase slip-ring motor. The crusher produces a minus 1-in. output from a raw feed up to 4 x 4-ft. slabs delivered to it with an apron feeder.

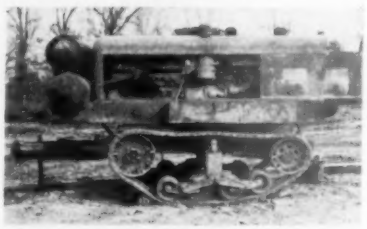
However, the raw limestone contains so much clay that the grates become clogged and stop the crusher, even though the volume of feed is not increased. Occasionally, a large block of particularly hard stone will jam the hammers and stop the crusher. These conditions have required a man to supervise the feeder and crusher continuously and closely, even though he did very little actual work. Intermittent, manually controlled feed reduced the production of the crusher.

An automatic control system was designed and installed to control the operation of the apron feeder from the amount of material in the crusher. When locked in this automatic system, the apron feeder can only be started if the two crusher motors are operating. It will continue to operate without attention until an overload condition occurs in the crusher.

Then, an impulse transmitter in the rotor circuit of the crusher motors will actuate a relay in the apron feeder motor, stopping the motor immediately. A time-delay relay will start the apron again if the crusher is no longer overloaded and there is no signal from the impulse transmitter. If the crusher is still laboring the signal will stop the apron until the crusher has freed itself from the overload.

Herbert Motek
Essen-Werden
West Germany

Compressor goes anywhere



THIS COMPRESSOR was balanced on the heavy channel frame and mounted on a half-track by an enterprising eastern stone producer. As a result he can haul the rig anywhere in his quarry that the crawler mounted drill can be taken.

Add weight to tractors

A SIMPLE METHOD of adding weight to load-carrying tractors and other heavy equipment used in the rock products industries is to fill the tires with a solution of calcium chloride—about 4 lb. of salt per gal. of water.

About 75 percent of the volume of the tire filled with the solution will provide increased traction, less slippage and reduced fuel consumption. There will be less hazard of operating the tires under-inflated since the solution will not seep through the tubes or walls of the tire under pressure.

Liquid filling can be done with either tubed or tubeless tires. Inner tubes must be fitted with valves with a special base to prevent separation of valve stem and rubber base. The only precaution with tubeless tires is to coat the metal rim with a rust-proofing compound before filling with the calcium chloride solution.

Tires which have been filled to the ¾ mark should first be inflated to about 10 lb. above standard pressure, then reduced to about 3 or 4 lb. above recommended operating pressure. After a few days the pressure should be checked and adjusted if necessary.

As a safety precaution — water should NEVER be added to dry bulk calcium chloride. The salt should always be added to the water, stirring slowly to let the generated heat dissipate. When cool, the solution is ready to be pumped into the tires.

END

BRADLEY HERCULES MILLS

HOW TO INCREASE CEMENT PRODUCTION UP TO 50%...

The capacity of an existing tube or compartment mill can be increased up to 50% or even higher simply by installing a Bradley Hercules Mill as a preliminary pulverizer on either the dry raw or finish side. Yet this increased production of cement raw material or finished cement is obtained at no increase in horsepower consumption per ton or barrel produced. The Hercules automatic electrical feed control eliminates manual operation. Rugged construction . . . dustless operation . . . easy accessibility to grinding parts keep maintenance costs at an absolute minimum. That's why so many in the cement industry rely on the Hercules Mill for increased production of finished material.

See Chemical Engineering Catalog or
for complete information, write for Catalog No. 63

BRADLEY PULVERIZER CO.
superior grinding equipment since 1891

LONDON ALLENTOWN, PA. BOSTON

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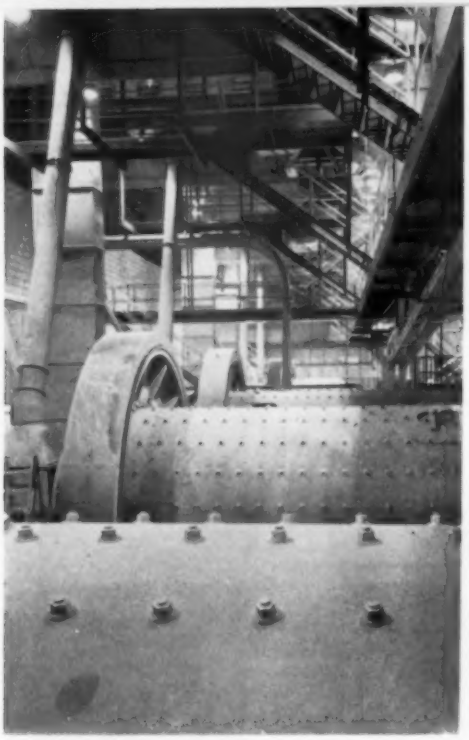
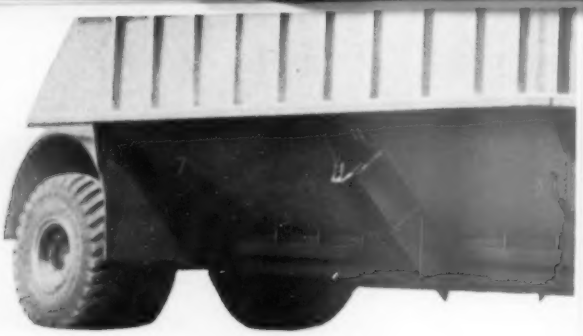




Depreciation

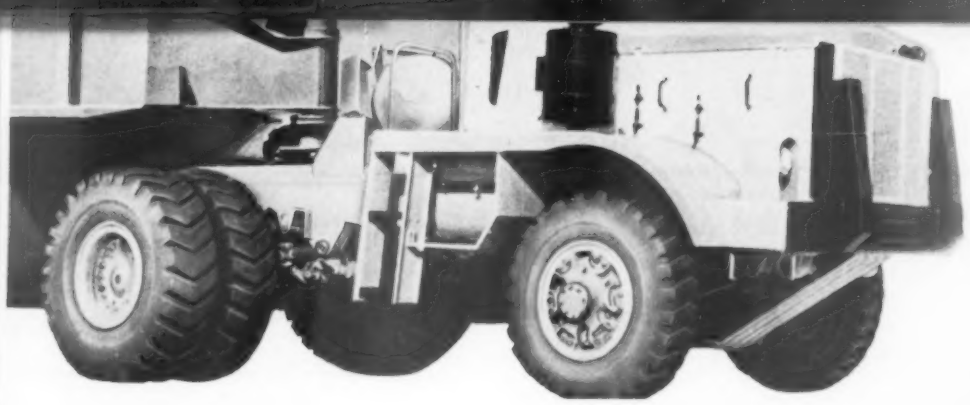
ROCK PRODUCTS PRODUCERS have been wrestling over the past few years with a Treasury Department publication known as Bulletin "F", which has caused businessmen an immeasurable amount of pain—particularly in the pocketbook. Bulletin "F" is the focal point of the government's confused and complex attitudes toward depreciation. This booklet gives estimates of the useful lives of many thousands of diverse items, including 48 in the cement industry and 58 in the sand, gravel and stone industries.

Although it was designed as only the most general sort of guide for agents of the Internal Revenue Service, Bulletin "F" frequently has been used by them to set thoroughly unrealistic lives on taxpayers' equipment. This, combined with the federal government's recent crackdown on salvage value, is making depreciation in tax returns one of the most urgent and vexing problems facing rock products producers today.

To find out the thinking of Treasury officials on this important problem and what individual rock products producers can do to live with the situation as advantageously as possible, I spent several days in Washington talking with industry and government officials. It seems clear, as a result of these conversations, that the only immediate improvement in the situation will have to come from a better understanding of what the issues are and an intelligent effort by both parties to negotiate their differences individually.

Depreciation is so much an individual problem that it's impossible to set down ground rules which apply across the board; yet the government has attempted to do this with Bulletin "F". For example, suppose companies A and B each buy a new truck—identical in every way—at exactly the same time. A operates his truck 24 hours a day over three shifts, and his men drive it hard. Maintenance is shoddy, and at the end of three years the truck is good only for scrap. Company B, on the other hand, uses its truck only on one shift, and it is well-maintained and driven intelligently. B uses his truck for five years, and then is still able to sell it at a fairly good price. In addition to these wide variations in use, there may also be differences in climate, road conditions and many other factors that would enter the picture. Obviously it would be unjust to apply the same depreciation schedules to both of these companies; yet, this sort of thing is happening.

To get a better perspective on the current depreciation crisis, let's take a quick look at the history of tax depreciation in this country. The United States is in a unique position in the world today with regard to its handling of depreciation in computing taxes. In most other countries, the methods of figuring depreciation and the longevity and salvage value are left up to individual businessmen. The taxing powers figure that if the item is depreciated too fast, the businessman will be caught in his own vise when he is still using the machines without being able to take any depreciation on them. Money made out of the sale of already depreciated items is taxed not as capital gains but as



Rock Products
June, 1958

. . . you . . . and the tax boys

By JOSEPH N. BELL

simple income. The burden of proof in questioning depreciation practices is on the government and not on the taxpayer. In other words, the taxpayer doesn't have to justify his position; but the government does.

This was—in general—the attitude taken toward depreciation in this country until the late 20's. It's quite true that there had been substantial tax abuses by some businessmen, with depreciation one of the major offenders. Whether these justified the action taken by the government is debatable, but at any rate the whole emphasis on depreciation was reversed. The government was right, and the taxpayer wrong until he proved otherwise. In any contest, the burden of proof was on the taxpayer. This resulted in the development of some remarkably complex depreciation tables and structures and regulations which even the agents, frequently, didn't understand.

When the Eisenhower "business administration" came along, it was hoped that the government would revert to old depreciation practices, but this didn't happen. I asked several people in the Internal Revenue Service where the burden of proof lay in a dispute between government and taxpayer on depreciation today; all answered, without hesitation: "With the taxpayer." However, in an effort to be helpful to the businessman, the current administration liberalized depreciation methods in 1954 to give taxpayers a choice of how they wanted to depreciate their equipment.

This would have set the scales more in balance except for one thing: the IRS boys suddenly became aware of a depreciation nugget they hadn't been mining for some years: salvage value. Salvage had been dismissed with barely a mention in previous Treasury Regulations. Suddenly, in the '54 code, it turned up with a full paragraph which contained portentous phrasings like: "Salvage value must be taken into account in determining the depreciation deduction either by a reduction of the amount subject to depreciation or by a reduction in the rate of depreciation, but in no event shall an asset be depreciated below a reasonable salvage value." What is a reasonable salvage value? That question might be answered in a thousand different ways, but unfortunately the government way has become the right way. Prior to the emphasis on salvage value, the common practice had been to depreciate equipment to scrap

". . . the only

from a

Depreciation

continued . . .

value and if it sold above that, to enter the difference as income. But suddenly, in the past few years, government agents began swooping in on taxpayers and jacking salvage values up to a "realistic" figure. As a result, the whole depreciation structure changed and businessmen found themselves owing deficiency payments to the government—sometimes quite sizeable. This has happened already to a number of rock products producers. In every instance it has imposed a considerable burden on them; in a few instances, it has threatened to put them out of business.

Bulletin "F" study. Unfortunately, it appears that this program is going to stick. Last summer a committee was appointed by the Treasury Department to study Bulletin "F" and suggest revisions to bring it up-to-date (the rates in the present copy were set 16 years ago). This committee was petitioned by representatives of our industries to throw out Bulletin "F" completely on the grounds that depreciation is an individual matter and it is impossible to generalize on life of equipment.

The Bulletin "F" study has been completed and the recommendations of the committee forwarded to the IRS Commissioner. The officials with whom I talked refused to tell me what changes had been recommended beyond saying that the individual life figures had been brought up to date. However, it is apparent that Bulletin "F"—far from being discarded—will continue to serve as the bible of Treasury agents, and business will continue much as usual as far as depreciation is concerned. IRS officials wouldn't even speculate for me when the revised edition of Bulletin "F" will be available. It is now caught somewhere in the maw of big government; it will likely be six months to a year before it is disgorged.

In defending the government's program of reestablishing salvage values and assessing deficiency payment, one IRS official told me: "There's nothing startling in the new salvage regulations. The idea that depreciation should return only the loss actually suffered is certainly not new. What's caused most of the pain is that our audits have been running several years behind and when we discover a mistake in salvage value, it's likely to cost the taxpayer a considerable sum because it has already been going on for some years. We realize this is bad and are doing everything we can to bring our audits closer to the current year. We hope very soon that we will be working with returns two years old at the most."

Several things came through rather clearly from my conversations in Washington. First, there will probably be relatively few significant changes in Bulletin "F" when the revised edition appears. Second, there is no indication of a softening in the government attitude on depreciation or a change in the philosophy that the burden of proof in such matters rests on the taxpayer. And third, taxpayers—whether they like it or not—are going to have to live with this situation for some time to come.

In view of this fact, how can the rock products producer best protect himself in the matter of depreciation? The following suggestions were culled from a number of sources—including both the industry and government viewpoints:

1. Familiarize yourself with the depreciation laws and regulations.

immediate improvement in the situation will have to come better understanding of what the issues are . . . "

Every businessman-taxpayer should have a copy of each of the two books relating most closely to the depreciation problem. They make for heavy reading, but they form the basis of the government's attitude toward depreciation and as such should be familiar to the taxpayer. These publications are:

1. Bulletin "F"—Tables of useful lives of depreciable property, United States Treasury Department, Internal Revenue Service, Publication No. 173;
2. Regulations Relating to Depreciation, Treasury Decision No. 6182, United States Treasury Department, Internal Revenue Service, Publication No. 311.

These booklets may be obtained by writing the U. S. Government Printing Office, Washington 25, D.C. Bulletin "F" is 30 cents; Depreciation Regulations, 20 cents.

2. Set up your depreciation items—both length of life and salvage value—as realistically as possible.

To do this, you probably should have professional help. The depreciation method you select will have a large bearing on your taxes—and you must stick with this method, once selected, unless you get permission from the IRS in Washington to change. Your accountant or attorney will advise you; free help is also available from the local office of the Internal Revenue Service. When seeking their help on taxes, however, you should keep one thing in mind; their primary purpose is to build tax revenue while yours is to hold your tax to the irreducible minimum consistent with our tax laws. Therefore, on a matter of broad policy, it is probably best not to seek advice from the IRS.

3. Apply for a letter of agreement with the government on your depreciation table.

It is now possible to enter into an agreement with the IRS on the depreciation you set up in your returns. When you request such an agreement, an agent will call and review your depreciation tables; if he finds them satisfactory, he will draw up an agreement which both parties will sign. The tables may be changed on sufficient notice by either party during the life of the agreement, but no deficiency payments may be assessed if an agreement has been signed. Few companies have taken advantage of this—for obvious reasons. They feel that the agent will be unrealistic in the first place and they would rather take their chances on a better depreciation table and hope that is never questioned. This is a point you should discuss with your attorney or tax accountant.

4. If your depreciation rate is questioned by an IRS agent, give him a potent argument.

Assuming that you have used good judgment in setting up your depreciation, you then have sound ground on which to argue with an agent who wants to change it. Agents vary widely, just as do taxpayers. Some are eminently fair, scrupulous and reasonable; some are not. If you run into the latter type, you have recourse beyond him. But your first negotiations should be with the agent, and oftentimes the problem may be settled satisfactorily right there.

Along with the evidence you have assembled to back up your depreciation schedules, you might point out these things to him:

a. Depreciation is an individual matter, based on the individual experience of individual companies. Broad generalizations are not suitable in assessing depreciated life and salvage value.

b. Bulletin "F" is not an inflexible set of depreciation standards. Treasury officials emphasized this point, and said their agents are not instructed to use it this way. If your agent crowds you on this point, open Bulletin "F" to page 1 and read him this: "The Service recognizes that some of the schedules of useful lives . . . are outmoded. In some cases they may be too long, in others too short. Taxpayers are cautioned that the useful lives shown are not mandatory and were originally published solely as a guide to what might be considered reasonably normal periods of useful life."

5. If the agent is inflexible and you feel your cause is just, go over his head.

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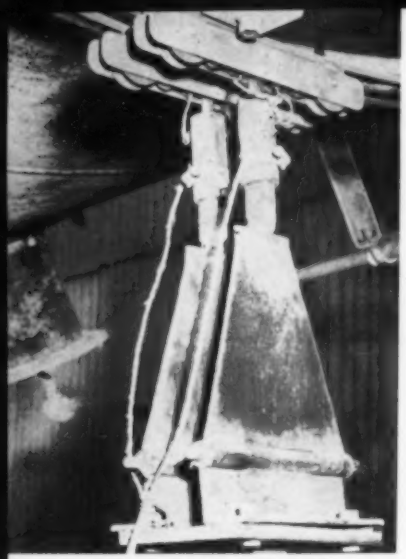


Detail of pickup and brush carrier. The brushes pick up the electromotive force from rings around kiln

Automation comes to kiln burning

It's now a practical reality through the extensive research work done by Calaveras Cement Company

By M. C. SUTTON and LEWIS A. PARSONS,
Chief Chemist, Consulting Engineer, Calaveras Cement Co.

RESEARCH IN BURNING CONTROL at Calaveras Cement Co. has established the practicability of automation. Through a complex arrangement of sensitive instruments, kiln burning has now become self regulatory at the San Andreas plant's 360 ft. long kiln E. Substantial gains in kiln burning efficiency in cement manufacture have been made by this completely automatic system now on stream.

The new approach to burning control was evolved and brought to reality step by step, but much work must be done in testing and tuning, checking and evaluating.

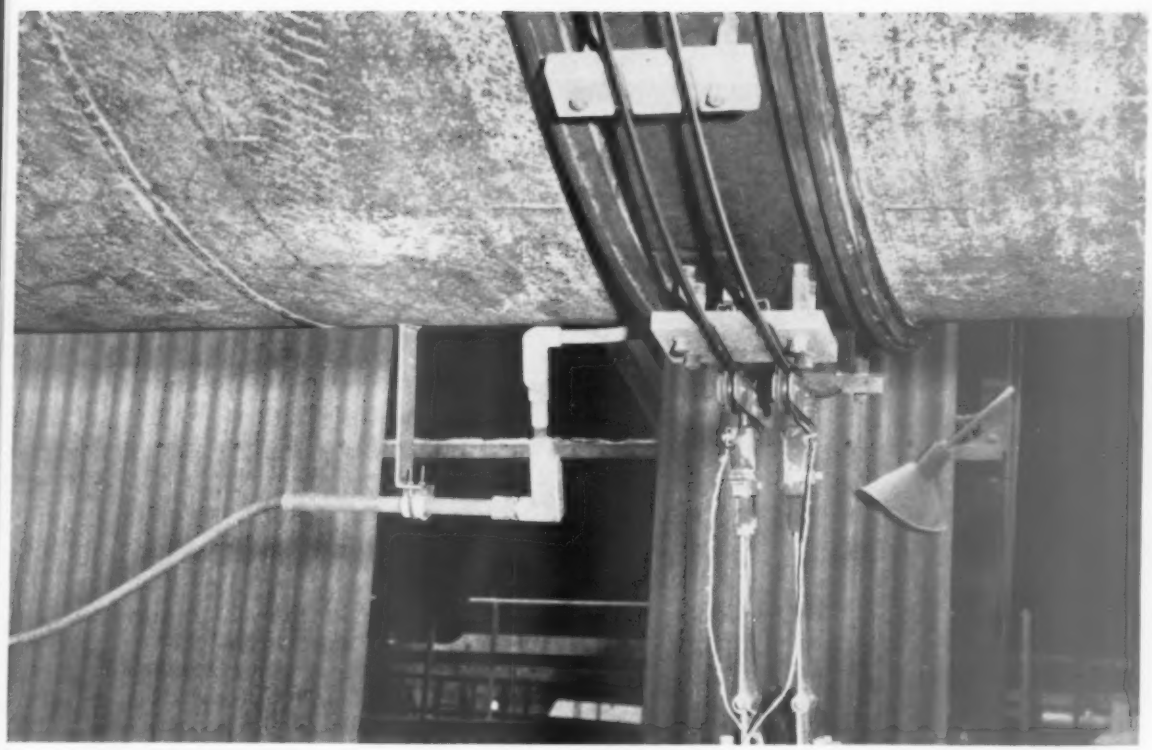
The first step toward proper combustion of fuel was taken in 1948 when the company's kiln C was equipped with an oxygen and combustibles analyzer. With this instrument the gases leaving the kiln were continuously analyzed for oxygen and combustibles. The kiln operator benefited from this information, indicated and recorded on charts.

In 1952 the instrumentation of kiln D provided control of draft fan speed by the oxygen recorder-controller. This brought control (within narrow limits) to the secondary air drawn into the kiln. The result was constant oxygen and excess air content in the combustion gases, leading to greater fuel economy.

The next advance was made in 1956 when ratio control between fuel setting and fan speed was established at kiln E. With changes of the fuel setting by the operator, the fan speed responds immediately and proportionally to maintain the predetermined fuel-to-air ratio.

An almost linear relationship was found to exist between fuel flow and fan speed required to induce the proper amount of combustion air. This relationship is utilized by feeding the signal from the fuel flow measuring orifice through a converter (to change the square-root signal to a linear signal) to a ratio relay whose output signal sets the fan speed controller.

This linear relationship changes slowly with changing resistance in the kiln and cooler so the oxygen controller changes the basic ratio in the ratio relay to maintain a constant oxygen content in the exit gases. Fan speed is controlled by pneumatically setting the speed rheostat in the control of the electric-magnetic clutch.



The pickup rings, carrier and well are shown completely hooked up in this view

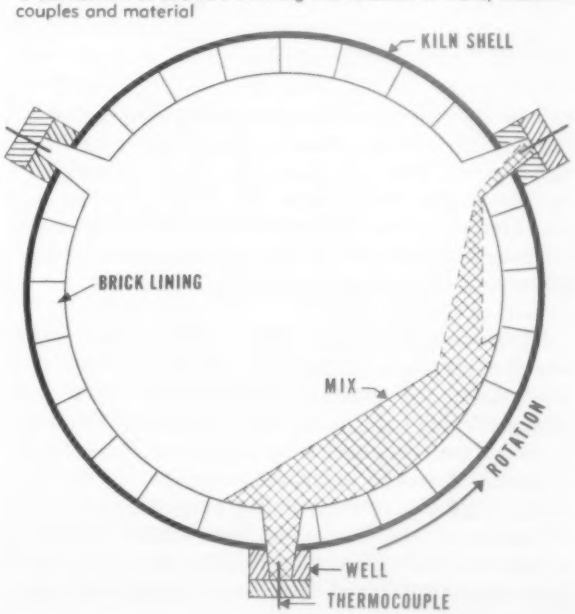
The problems of heat transfer and burning efficiency were approached in much the same manner as those of fuel combustion.

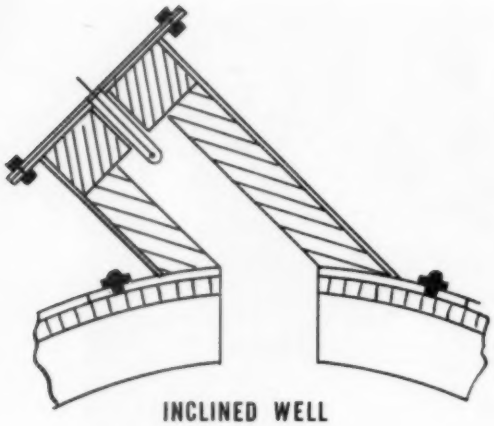
Normally the kiln operator, the burner, has no way of knowing how heat transfer is progressing until he can see the product, usually some 50 to 60 ft. from the firing end of the kiln. When the mix has not been properly heated and calcined, it is usually too late for the operator to make drastic fuel adjustments.

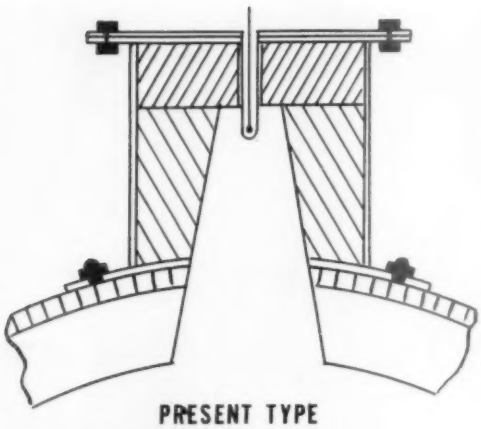
These adjustments frequently throw the kiln off balance for several hours, reducing fuel economy and possibly making substandard clinker. Furthermore, if the limestone in the mix has not had most of the CO_2 driven off before reaching the burning zone, no increase in temperature at that point can save the clinker from having excess free lime.

The center of the kiln is a vital blind spot, for the operator cannot know if adequate heat transfer is taking place there. He has only been able to estimate conditions indirectly by temperatures taken at each end of the kiln, and to be on the safe

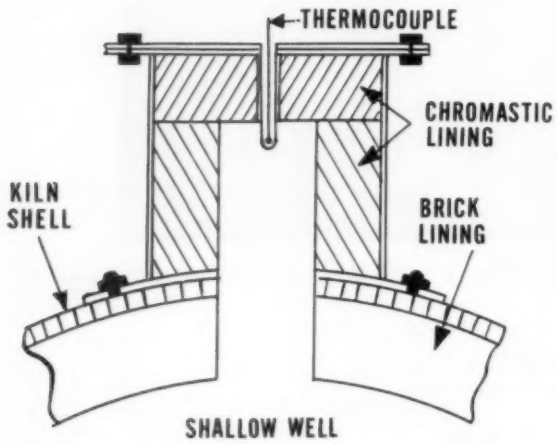
Cross section of the kiln showing the relation of wells, thermocouples and material







These three types of wells were used



Automatic kiln burning

continued . . .

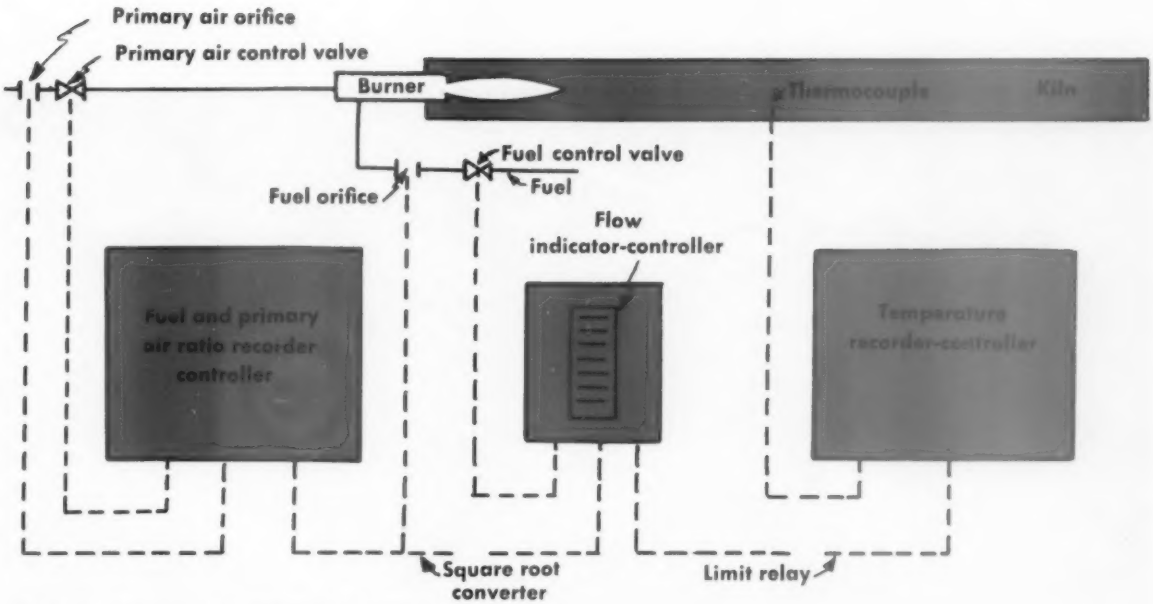
side he has maintained high exhaust temperatures. Some kilns require exhaust temperatures of 900 deg. F. even though it is greater than necessary to evaporate the water from the raw feed. The cement industry has recognized the need to obtain a reliable temperature of the mix rather than the gases as a way of controlling the reaction.

Thermocouples in the kiln at this critical point would record the temperature of the mix for the guidance of the operator. Temperatures taken just ahead of a critical point, and reasonably close to it, would permit less drastic and more gradual fuel changes. It would assure the operator of the arrival of the mix in the burning zone, where the reaction occurs, at the proper temperature and with adequate calcination. Later, after proper standards were established, they could become the keystone of a system to control the fuel automatically to maintain the optimum temperatures.

The introduction of a thermocouple into the kiln presented several problems. If projected through the brick, it would give a fluctuating temperature between that of the gases and that of the mix, with results too erratic for reliable control; it would be mechanically weak and have short life. If imbedded in the brick for mechanical protection, the lag would be great and results erratic, with the additional complication of producing rising temperatures as the brick eroded.

The drawback to positioning a thermocouple is best illustrated with details from E kiln which is 360 ft. long, 11¼ ft. in outside diam., and 10¼ ft. diam. inside the bricking. A wet-process kiln, the chain system takes about 44 ft. of kiln length. The kiln rotates at approximately 1¼ rpm. and has a slope of 7/16 in. per ft., which gives a material retention time of about 2 hrs. Natural gas is used for fuel. The mix has a calculated depth from 11 to 15 in. in the bottom of the kiln, and makes contact with 68 to 80 deg. of the circumference. Obviously, a thermocouple protruding through the brick would be in contact with the material only 22 percent of the time and in contact with combustion gases at a much greater temperature the rest of the time.

Calaveras' previous experience offered a likely approach to the solution of the problem. During a kiln study in 1949, material had been drawn from a kiln through wells in the brick and ports in the shell into an insulated container with a thermocouple in the bottom. Containers attached directly to the shell will fill with material at the lower part of the rotation and empty at the upper part. Wells were made by casting heat resistant compound inside a section of 10-in. diam. pipe.



Schematic diagram of burning control system

An inclined well was first designed to retain the material in contact with the thermocouple as long as possible. This prolonged contact was found to be unnecessary since the thermocouple remained at the same temperature even while the well had no solid material in it. During the upper part of the rotation there was no flow of hot gases past the thermocouple and the heat of the gases which replaced the solid material was not great enough to change the temperature of the thermocouple.

A shallower well was installed in a position normal to the kiln. While it obtained satisfactory mix temperatures as long as it emptied freely, it had a tendency to plug. This led to the development of the third type of well which has performed satisfactorily in every way.

At the beginning of the experiments it was thought that to obtain a continuous temperature record, it would be necessary to have the recording thermocouple immersed in solid material continuously. Accordingly, three wells were spaced at 120 deg. apart around the kiln, with split collecting rings to record temperature progressively from each thermocouple. This was found to be unnecessary, and now only one well is used, located about 170 ft. from the firing end of kiln. A Chromel-Alumel thermocouple with a stainless steel protector tube is used, because the recorded temperature averages 1,400 deg. F.

The thermocouple in this single well is connected to two phosphor-bronze collecting rings mounted around the kiln on insulating blocks, with springs to compensate for thermal expansion. The original three insulated segments are now electrically connected to provide a continuous record with one thermocouple.

The emf. of the thermocouple is picked up from the rings by means of brushes supported in carriers which track the rings.

The controlling and recording system was designed jointly by Lewis A. Parsons, consulting engineer, and M. C. Sutton, chief chemist of the Calaveras Cement Company. Nels Swanson of Swanson Engineering and Manufacturing Company, Inglewood, Calif., assisted with the instrument details.

The signal from the thermocouple is picked up with a temperature recorder-controller (pneumatic control with automatic reset) in the control panel. The pneumatic signal from this controller goes through a limiting relay to limit high and low fuel settings, to an indicating flow controller (pneumatic control with proportional and automatic reset) which controls the fuel valve to maintain constant material temperature at the thermocouple. Fuel and primary air flow are recorded and the ratio of the primary air to fuel is controlled by a ratio receiver recorder-controller with proportional and automatic reset. The secondary air ratio is maintained by changes in fan speed as described

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Inside the mine which operates on the room-and-pillar method

Tests indicate company is mining 99.48%

Going underground . . . for a pure white silica

pure silica

By ELWOOD MESCHTER

ALONG THE NORTHERN REACHES of the Mississippi River near Clayton, Iowa, a massive block of white sandstone outcrops in the high bluffs overlooking the river. Here a silica company is mining and processing an exceptionally fine and pure silica from a 30-ft. seam of St. Peter Sandstone.

Clayton Silica Company is a division of Concrete Materials Co. of Cedar Rapids whose energetic sales organization markets its silica products widely. The 10 grades of fine sand regularly produced have many well-established industrial markets, but the screening plant is flexible enough to make other grades within the limitations of the deposit to meet the needs of other markets and newer processes which may be developed.

Much of the output of the processing plant is used in the foundry industry where the several sizes of silica sand are in steady demand. Each grade is carefully controlled to American Foundrymen's Association standards of fineness for core sand and facing sand applications in the foundry. When mixed with thermo-setting plastics the very finest sizes are ideal for the newly developed and rapidly growing shell molding process.

The excellent chemical and physical properties of the sand are valuable in many other industries. The sand can be mixed with cement, stucco or other bonding agents to make specialty cements, plasters or bonding compounds with unusual properties. Sand mixed with soaps, foaming agents and fillers makes industrial abrasives and polishing compounds. The wide variety of possible new uses often calls for more exacting specifications of fine sizes of silica sand, which the processing and testing system at Clayton Silica assures. All these new applications are gradually replacing many of the conventional uses for sand which formerly took most of Clayton's output.

The sandstone formation is a tight, massive deposit. The 30-ft. seam outcrops along the Iowa shore of the river about 100 ft. above the water, and is thought to extend for miles inland from the river under about 100 to 150 ft. of limestone and shale caprock. The sandstone rock is mined by the room-and-pillar

From primary crusher, left, this conveyor takes the sand to screening and recrushing phase

Clayton Silica Co.

continued . . .

method with 50 ft. square pillars on about 90-ft. centers supporting the roof. While the mine has been in existence for many years, only recently has it been systematically developed and extended.

The sandstone is made up of minute, definitely defined grains of sand (silica), cemented together with minute amounts of other minerals. The purpose of the whole processing operation is to break the individual grains out of the matrix without cracking or fracturing them. The sandstone in this segment of the St. Peter formation is made up of grains which are 10 percent plus 40 mesh, 71 percent 40 x 100 mesh, and about 19 percent minus 100 mesh. The impurities which cement the sand grains break into micron-size particles. These become airborne in the processing and the loss of this material improves the quality of the finished products.

In the mine three separate faces are worked simultaneously. In one room an electric shovel is loading blocks of blasted rock into trucks to be hauled to the primary crusher. In another room a second shovel, fitted with a drilling jumbo, is preparing the face for blasting. In the third room a powder man is ramming and stemming each of 48 holes with dynamite in preparation for the blast which will bring down about 500 tons of sandstone.

The blast holes are 2½ in. diam. and about 14 ft. deep drilled in a rectangular pattern in the face. Blasting is done almost every day and 350 lb. of dynamite are used. Each blast produces sand which reduces the load on the crushers.

Ventilation in the mine is adequate, even with haulage trucks operating. The front-end loader is equipped with a catalytic monoxide suppressor and use white gas for fuel. If there is any accumulation of fumes or fog in the mine, a large fan can bring air in through one of the three 40-ft. square openings in the face of the cliff. The temperature in the mine remains at about 56 deg. F. at all times, summer and winter.

Screening and crushing. The primary crusher is located in one of the first rooms to be cut into the cliff. The truck dump hopper, belt feeder and jaw crusher are set in a pit gouged into the soft stone floor of the mine. Since the working faces are still close to the crusher, the six trucks easily keep ahead of the crusher. Run of mine rock which piles up ahead of the crusher is stockpiled in the rooms near the crusher with a front-end loader, and re-

Looking down from the high sandstone cliffs on the plant

claimed whenever needed. There is no need to segregate any of the stored materials since the stone from all parts of the mine is relatively homogeneous in physical composition and chemical analysis.

Sandstone is reduced to minus 2 in. by the primary crusher and then carried to a pair of 4 x 12 ft. vibrating screens atop a screening tower. The flow of material is split between the two screens, with the top deck of each taking off plus ¾-in. stone. This size is taken to a double roll secondary crusher set for ¼ in. and the crushed fines returned to the main conveyor to be rescreened.

The lower deck of the screens takes out the plus ¼-in. sand to be conveyed to a second two-roll crusher. The product of this crusher is conveyed back to the main inclined belt to be recycled through the screens. Both secondary crushers have smooth faced rolls which break the lumps of stone into their component grains without damage to the grains.

A belt conveyor system below the floor of the mine carries the through-screen material out of the mine to the edge of the cliff. The belt discharges to another belt conveyor at a lower elevation which carries the raw silica to the top of a 90-ton surge bin far below the level of the mine floor.

This storage bin permits the processing plant to operate independently of the mine for several hours. It feeds sand to a belt conveyor carrying the raw sand to an 8 x 60 ft. oil-fired dryer which reduces four percent initial moisture to bone dry. Automatic controls on the dryer assure that final

Please turn to page 110

MAJOR EQUIPMENT USED AT CLAYTON SILICA CO.

In the mine:

Shovels (2)	Northwest Engineering Co. Bucyrus-Erie Co.
Trucks (7)	Ford Motor Co. (2) Dodge Bros. Div., Chrysler Corp. (2) Chevrolet Motor Div., GMC (2) Willys Motors, Inc. (1)
Front end loader, Scoopmobile	Mixermobile Manufacturers
Crusher feeder belt Primary jaw crusher Secondary roll crushers (2)	Iowa Manufacturing Co.
Vibrating screens (2)	The W. S. Tyler Co.
Belt conveyor, main	Continental Gin Co.
Belt conveyors, secondary (2)	Link-Belt Co.

In the processing plant:

Dryer	Hardinge Co., Inc.
Dust collector, wet	Buffalo Forge Co.
Belt conveyors	Continental Gin Co.
Dust collectors (2)	American Wheelabrator & Equipment Co.
Vibrating screens (4)	The W. S. Tyler Co.
Vibrating feeders	Syntron Co.
Bagging machine	Winborns
Vacuum cleaner	Invincible Vacuum Cleaner Mfg. Co.

It's good public relations

Selling the community sells

SINCE 1951, THE OHIO GRAVEL CO. has spent a lot of money on an advertising campaign that makes no effort to sell the company's product. Instead, this public relations program is designed to sell the public on the importance of the sand and gravel industry.

"During and after World War II, we were constantly reminded of the meritorious services of the transportation companies and manufacturers in heavy industry," says Earl P. Holwadel, vice president and sales manager of Ohio Gravel. "No mention was ever given sand, gravel and stone producers and their importance in the building of homes, factories and roads and materials supplied the railroads for their maintenance. Therefore, in 1951 we launched an advertising compaign of public relations, hoping to apprise the public of our importance to the country's general welfare. This program, we think, has produced results."

Ohio Gravel operates seven gravel processing and crushing plants in the Cincinnati area, and its advertising is divided between metropolitan and rural newspapers. Without referring to Ohio Gravel products, the ads point out the part played by sand and gravel in the life of the community.

Typical advertisements publicize worthwhile public improvements such as schools, hospitals, libraries, water and sewer extensions, and streets and highways. One ad, headlined "Your Cincinnati Area—Over 150 Years Old and Still Growing," plugged the city's Metropolitan Master Plan for modern highways in the Cincinnati area. Ohio Gravel has also promoted traffic safety and organizations like the Boy Scouts.

The company's advertising benefits the entire industry, but ads are only part of the public relations picture. The company encourages foremen and all employes to join local organizations and take an active part in church, school and civic affairs in each plant community.

Company attitudes and actions speak louder than the printed word, says Mr. Holwadel. Two land rehabilitation projects sponsored by Fred W. Cornuelle, company president, illustrate Mr. Holwadel's point.

Mr. Cornuelle bought two abandoned gravel pits from the company and turned them into parks for fishing and recreation. Both sites are east of Cincinnati. Lake Bern is located on by-pass Highway 50, near Miamiville; Lake Ukaala is on the Loveland-Madeira road.

Both areas have been graded, and the banks of the lakes have been smoothed off and seeded. Shrubs and trees have been planted, transforming the drab, weed-grown sites into beauty spots. These projects have generated favorable public opinion towards the gravel industry in general and Ohio Gravel in particular, and indications are that they will eventually return a substantial profit.

Public relations program. Mr. Holwadel is chairman of the public relations committee of the Ohio Sand and Gravel Association as well as supervisor of his company's public relations and advertising program. At the National Crushed Stone Associa-

Ohio Gravel

By HUBERT C. PERSONS

tion meeting in Chicago, he presented the basic ideas formulated by his committee. In question-and-answer form, here are the ideas which his committee feels should be emphasized in public relations and advertising by both gravel and stone companies:

Q. Aren't you proud of the business you are in?

A. If you aren't, you can't expect others to be. The gravel and stone business serves a purpose that redeems the dirt, noist and unsightliness of its operation.

Q. Does the romance of stone and gravel remove us from the "pick and shovel class" to a place of dignity?

A. Yes, it does. Both materials contribute to safety, health, comfort, industry, education, religion and agriculture through their use in building construction and roadbuilding.

Q. Aren't we as important and essential as any other business?

A. Yes, indeed. Products of every other industry must be transported at least part of the way over roads in which gravel or stone have been used. Agriculture and industry are also dependent upon these products for industry. Gravel and stone are used in roads of either concrete or asphalt which make possible travel to churches, schools, and places of recreation.

Q. Do you know that we generate work directly and indirectly for many types of labor?

A. In addition to those employed in gravel plants and quarries, the industry makes work for con-

Please turn to page 112

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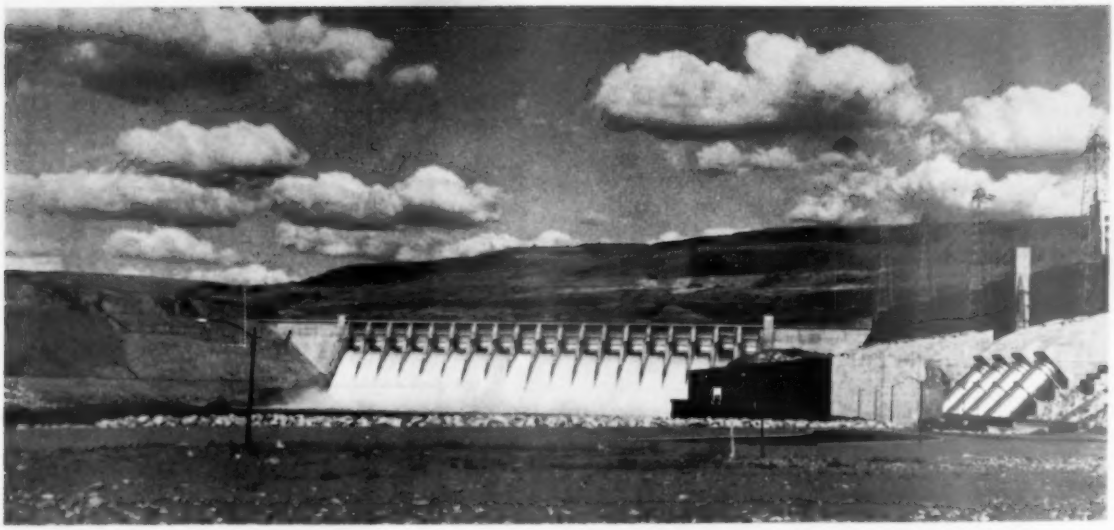


More dams abuilding . . .

more rock markets opening . . .

By WALTER B. LENHART

LIKE WOMEN'S HEMLINES, styles in dam construction have their ups and downs. Fashions in dresses and dams change periodically, and in both worlds it is the designer who calls the change.

West of an imaginary line drawn southward from the Montana-North Dakota border, 90 to 100 dams are being built or planned. These western dams, whose total cost may run as high as $8 billion, represent an important market for rock products. Sand and gravel plants are often built at the damsite by a commercial producer, or the aggregates are produced at distant commercial plants and hauled to the site. Cement plants have been built for the supply of a single dam.

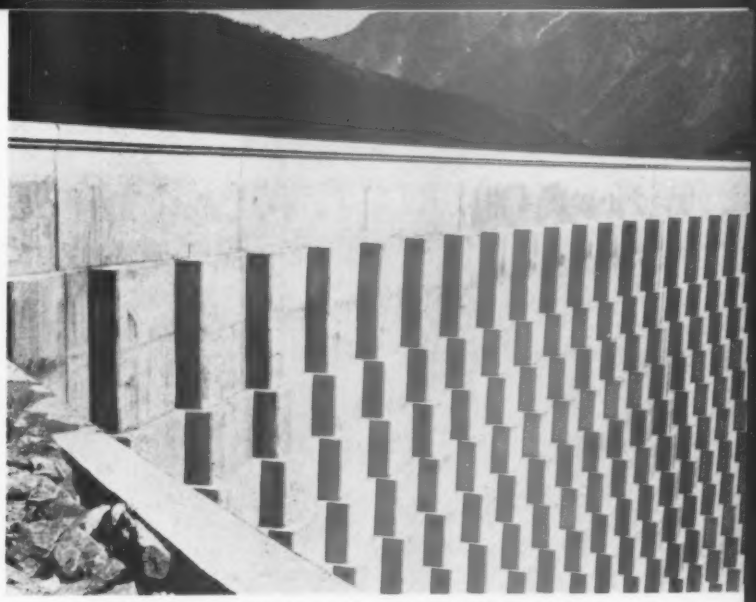
Highways and railroads are now being relocated near the site of the $425 million Oroville dam on the Feather River, in central California. Work on the Brownless dam, on the Snake River, is in vigorous progress. Several generators have yet to be installed at Chief Joseph's, and The Dalles, a $350 million dam, is in the final stages of completion. John Day dam, another $350 million project on the Columbia, has received a small initial appropriation from Congress. The Trinity project in California and Baker dam in western Washington are active.

The dams in the West are mostly of gravel aggregates and natural sand. In the East, crushed stone predominates. Some dams are all limestone with natural sand; many are of coarse granite and fine aggregates manufactured from the granite. Types of cement include blends of slag cement, natural and various kinds of portland cement.

The changing picture in dam construction through the years has led to many advances in sand, gravel and crushed stone processing. The building of a new plant offers an opportunity for trial of new designs. For example, the use of rod mills for manufacturing sand gained momentum from dam construction. Rod mills were used to manufacture sand out of the coarse aggregates, to gain added fines and to aid in better gradation.

Present-day drainage practices using radial stackers stem from dam designers' requirements. More accurate sand classifications led to the adoption of multi-spigot sand sizers. From the experience gained, the advantages became apparent, and

Chief Joseph dam on the Columbia River. This photograph shows the spillway and the inlet structures for turbines yet to be installed



The face of Ross dam has a checkerboard effect with deep indentations on its downstream face. At some later date the dam may be built higher and thicker. When that day comes, the dove-tailed checkerboards are expected to supply a suitable bond for the old concrete and the new

Spillway of Pardee dam. An important portland cement company got part of its start by supplying cement for this structure

today several types of sand sizers and water scalpers are available to commercial producers.

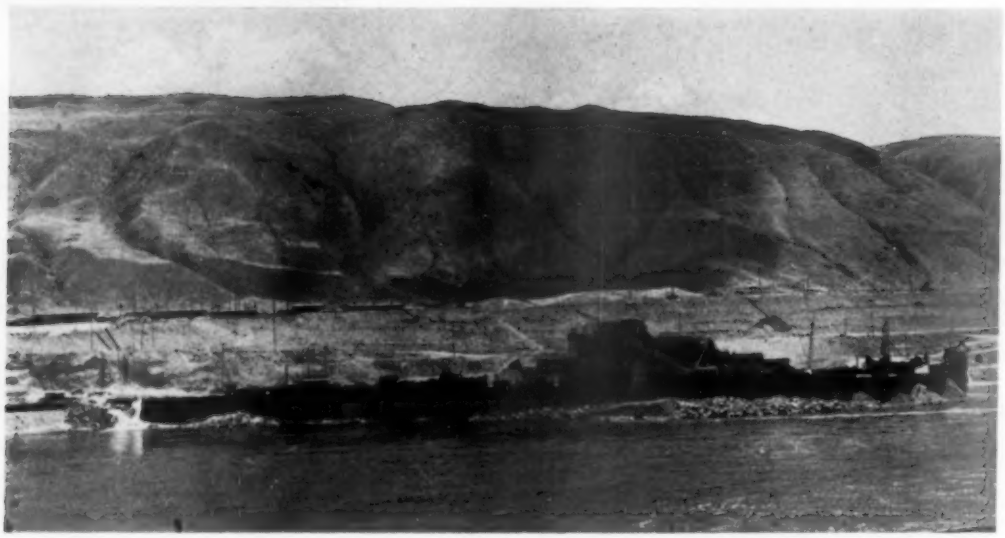
Large off-the-road hauling equipment used by dam builders finds its place in present-day aggregate operations. Root and wood-fragment removers like those used at Pine Flat dam in California were a worthwhile innovation, although no commercial producer has yet adopted the idea.

The heavy media separation process will be introduced to dam builders for the first time at Glen Canyon, the giant dam being built on the Colorado River. Most of the concrete dam will be of natural gravel processed in a conventional plant. The up-graded gravel from the HMS plant will be used for foundations, pentstock tubes, spillway, stilling basin and other locations that cannot be repaired easily once the dam is functioning.

In the past, fashions in dam construction have given rise to many innovations in processing technology. Ideas have been adopted, used a few years and dropped. Not many years ago, the theory of "thermal incompatibility" dominated the field. This meant that fine and coarse aggregate had to be of the same mineralogical composition. Therefore sand had to be manufactured from the coarse aggregate.

Then cooling of the aggregate was considered important. Large refrigeration plants were used to inundate silos of coarse aggregates with ice water. Ice was used in the mix, the portland cement was artificially cooled and, finally, the mass concrete was cooled by pipes buried in the matrix.

The tempo of this adventure in concrete technology seems to have slowed, possibly because



Rocky Reach dam on the Columbia river. Here a sand and gravel plant was built right at the water's edge to supply aggregate. The dam is still under construction

More dams abuilding

continued . . .

dams are now lower and masses of concrete are smaller. When some of the bigger dams get underway, there may be a return to this approach.

The many older concrete dams that dot the West present many contradictions. Two important dams will illustrate this fact. Ross dam, on the upper Skagit River, is rated as one of the best concrete dams in America. Elephant Butte dam, on the upper Rio Grande, is much older, but it too is an excellent piece of concrete, judging by the small amount of money that has been spent on repairs.

Ross dam was built with extremely close supervision of the concrete. The gradation of the aggregates was watched meticulously. No pozzolan or additives were used.

On the other hand, "anything went" in the construction of Elephant Butte dam, according to an engineer who guided this writer on a recent inspection. The foundation is subgrade. In many instances a batter was made and donikers weighing several tons were dumped in the soup. Portland cement clinker was hauled to the damsite and ground on the job along with a local siliceous rock. At the time the dam was built, measured leakage was in the 65 units per min. range when it was two-thirds full. Thirty years later the leakage rate is the same. Major cracks: none. Minor cracks: a few. The minor cracks were all above the water line and were repaired by a few men using a thick grout.

Divergent engineering approaches and varied techniques have been used by builders of dams in the past. The Friant dam, near Fresno on the San Joaquin River, used a local pumicite as an additive. Davis dam on the lower Colorado used a calcined "Puente shale," said to be about 25 percent opalite. A locally ground and calcined pozzolan was used in Falcon dam, on the lower Rio Grande, and hydrated lime was used as an additive in the Wilson dam, one of the older structures on the lower Tennessee River. At Arrowhead dam, in Idaho, a siliceous material was interground with the cement clinker.

Dams in which the concrete proved to be of low durability are Parker, Gene's Wash and Copper Basin, all part of the Los Angeles Metropolitan Water System. Copper Basin dam "breathes." During this breathing process it has grown several inches in height and has tipped upstream several more inches. All three are badly cracked; the cracking is said to be due to "reactive aggregates."

The nature of the pozzolans used by dam builders varies. Pozzolans include diatomaceous earths, natural and calcined; pumicite, a natural, finely-divided pumice; ground calcined shales; volcanic ash; natural fine sand, and silica flour, a manufactured material. Apparently anything relatively inert, granular and in the range of 5,000-6,000 gms. per sq. cm. (Blaine) is worth a try. The pozzolan

Please turn to page 119

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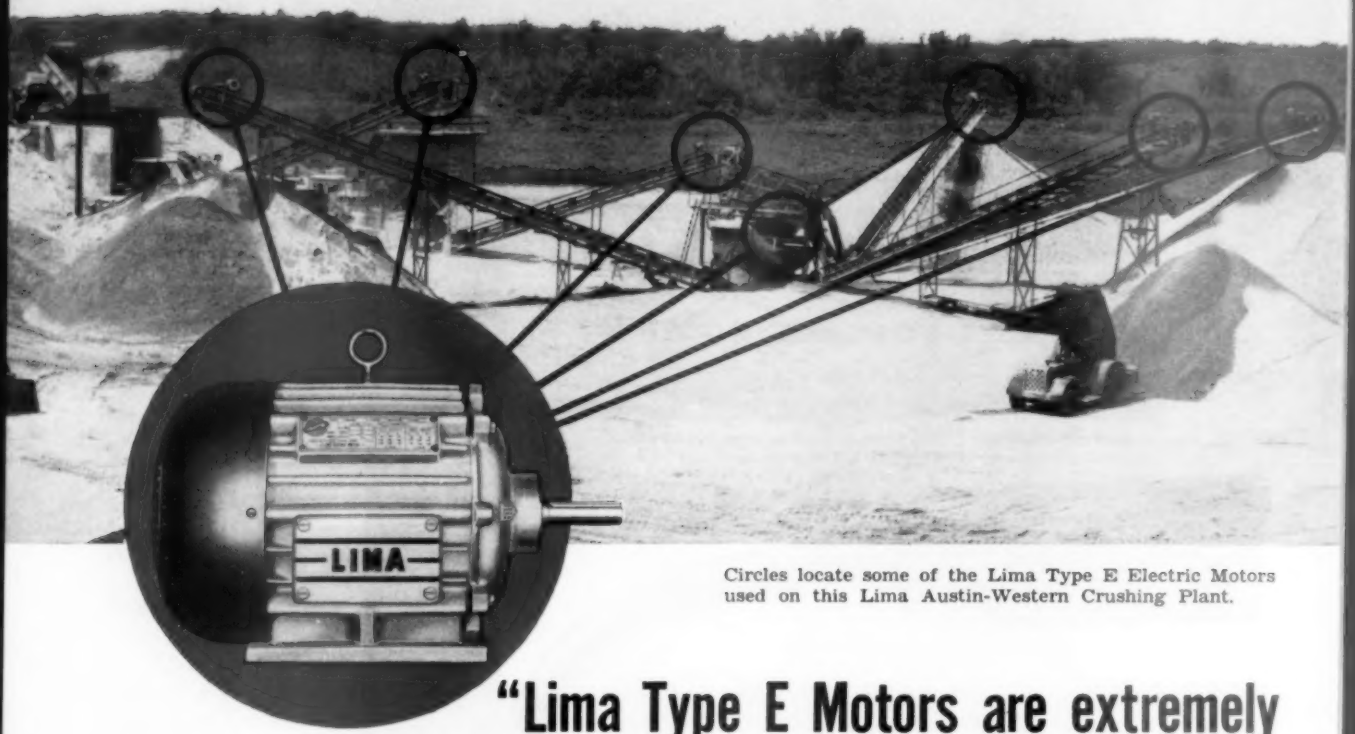

Circles locate some of the Lima Type E Electric Motors used on this Lima Austin-Western Crushing Plant.

"Lima Type E Motors are extremely rugged with plenty of power and an excellent performance record in heavy-duty rock crushing service..."

says Al Bellows
Construction Equipment Division
Baldwin-Lima-Hamilton Corporation

Lima Type E (TEFC) Motors are the original equipment choice for Lima Austin-Western Electrically Driven Crushing, Screening and Washing Plants.

Al Bellows, Sales Manager for Baldwin-Lima-Hamilton Corporation Crushing Equipment, summarizes at right the reasons for their selection. These features of Lima Type E (TEFC) Motors help make Lima Austin-Western Plants (stationary or portable) more efficient in producing high tonnages of aggregate in accurately controlled sizes.

- **MAINTENANCE-FREE**
  Lima Type E (TEFC) Motors are lubricated for life—they require absolutely no maintenance.
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  Heavy duty DOUBLE-WIDTH ball bearings (prelubricated, protected and sealed) withstand the heavy loads and shocks present in rock crushing service.
- **TROUBLE-FREE OPERATION**
  Lima's specially designed shroud protects the motor from the hazards of rock-crushing service. Rock particles cannot cause motor damage—plants stay in operation.
- **AMPLE SAFETY FACTORS**
  Lima Type E (TEFC) Motors have plenty of reserve power to maintain top operating efficiency under peak loads—and in continuous service.
- **SPACE SAVING FRAMES**
  Furnished in new NEMA frames, Lima Type E (TEFC) Motors are easily installed—they help solve design, weight and space problems by providing maximum power in minimum motor area.

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Pacific AIME group meets, shows . . .

how to promote a convention

COMPARED WITH SOME NATIONAL conventions, the Pacific Southwest Mineral Industry Conference was small; but, like a scrappy kid, it taught a lesson some of its big brothers could well follow.

Sponsored by the San Francisco, Nevada and Southern California sections of the American Institute of Mining, Metallurgical and Petroleum Engineers, the meeting was held in San Francisco March 27-29, with less than 500 registered. However, the conduct of the meeting and the nature of the program set an example for some larger meetings. If this pattern were followed, convention sessions now attended by a small percent of the registration would tax the capacity of any hotel meeting room.

First, an experienced and capable public relations man was hired to sell the convention's message to the general public.

Next, for the first time at any mining conference, topics of interest to the industrial-minerals "miner" outweighed those strictly concerned with metals.

And finally, the scope of the convention was broadened to include papers of general appeal.

Charles Dahle, of San Francisco, filled the public relations post. Mr. Dahle realized that one goal of such meetings is to increase the layman's awareness of the problems of the industry. Far too often, industry problems (example: depletion in the aggregate industries) are discussed endlessly at meetings until the subject is worn thin, as far as members of the industry are concerned. But the man on the street often knows nothing of these problems—and he is the one who counts, especially at election time.

The press room at this meeting was a focal point for all reporters in the area. Many of the important speakers came to the press room before or after their talks and gave the assembled reporters an informal run-down on speech topics.

Speeches were tape-recorded for the benefit of the press. Even TV played a part in getting the message to the people. Each day, papers in the area carried material like this:

"Dr. Richard M. Foose, chairman of the Department of Earth Sciences of Stanford Research Institute, made the point that we are going to need vast new reserves of industrial minerals, not simply metals, to take care of our growth demands.

"Right now, he showed, industrial minerals—sand, gravel, crushed rock, cement, potash, phosphate, salt, sulfur, talc, asbestos, gypsum, clay, etc.— make up a far bigger business and a more important part of our economy than most of us realize.

"He made this comparison: 'In 1956 California alone turned out $215 million worth of cement, sand and gravel, while our 11 leading metals were produced in the amount of just $50 million.' "

At this meeting, including luncheons, there were 37 speakers; of these speeches, 24 were of interest to the industrial mineral industry.

Appeal to the public. Almost every paper was made available to the press both in abstracted and complete form. Copies were also available to those in attendance.

A few papers went outside the industrial mineral field to achieve general appeal. One example is the paper by Gerald W. Johnson, who gave a report on "Mining Implications of the Underground Nuclear Detonation of Sept. 19, 1957." A few of the applications brought out by the speaker:

1. Production of underground artificial reservoirs for storing ground waters in arid sections.
2. Breaking up low-grade ore deposits prior to leaching.
3. The exploitation of oil shale and tar sand de-

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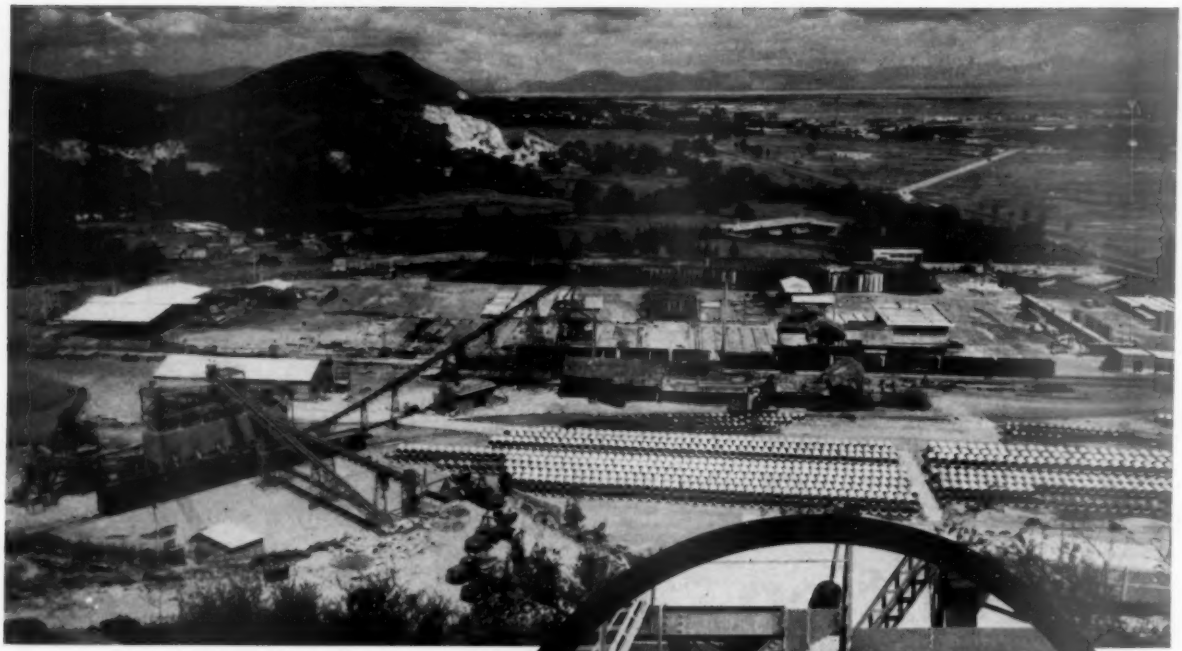

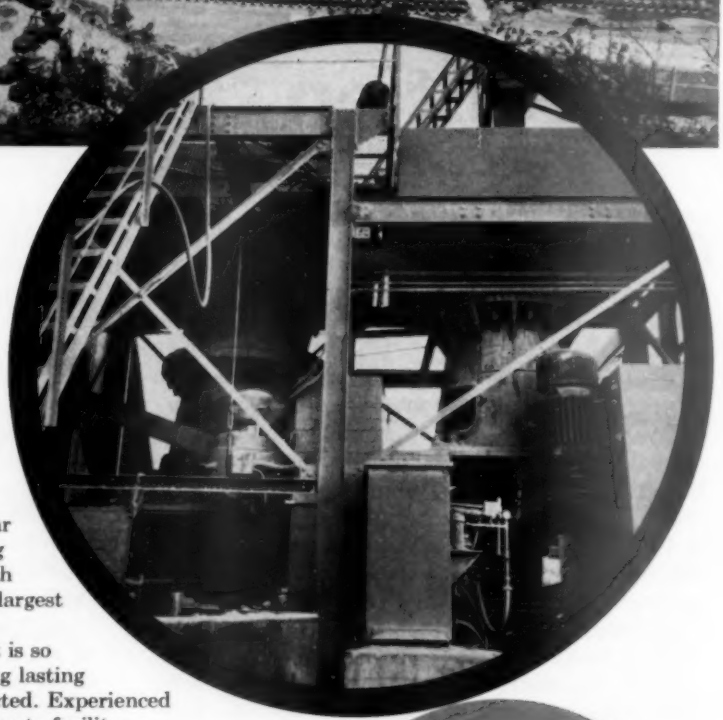

another complete

KENNEDY

AGGREGATE PLANT

Six hundred meters of concrete pipe are produced every day in this giant plant of the Lock Joint Pipe Company of Mexico near Santa Clara, Mexico. Much of the pipe going into Mexico's ever expanding network of fresh water supply lines is made at this plant, the largest of its kind in Latin America.

To provide the high quality aggregate that is so important to the manufacture of durable, long lasting concrete pipe, KENNEDY equipment was selected. Experienced KENNEDY engineers designed the entire aggregate facility, and KENNEDY Gyratory Crushers, Conveyors and Screens were installed.

Rock processors all over the world have grown to respect the name KENNEDY, and to depend on the experience and ability of KENNEDY engineers to design complete plants which produce consistently fine product at low overall cost.

CONSULT TODAY WITH YOUR KENNEDY SALES ENGINEER.

KENNEDY Gyratory Crushers are at the heart of the aggregate plant, converting tons of rock into useful raw materials in a narrow range of sizes. The qualities which distinguish KENNEDY equipment are high capacity, quality product, low operating cost and minimum maintenance.

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Careful selection of machinery, good advance planning pays off for stone plant

Tailor-made design cuts plant's maintenance

HIGH HOURLY OUTPUT of specification stone with most economical use of men and machinery—this was the goal of R. H. Wright & Son, Fort Lauderdale, Fla., in building a new aggregate plant at Pompano Beach. How they achieved their objective is largely the story of wise planning by Saunders A. Dukes, general superintendent, backed by the confidence and cooperation of management.

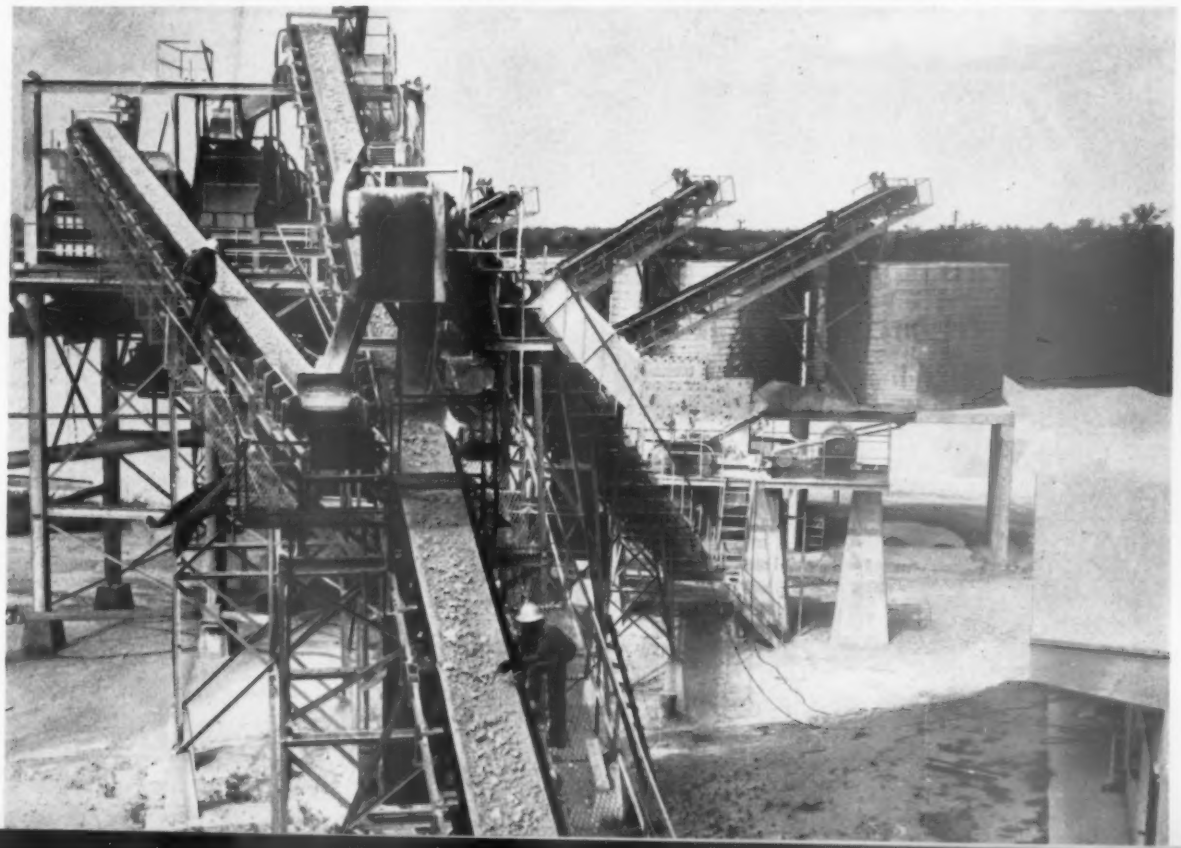
Ninety percent of the total plant output is being used by R. H. Wright & Son at is prestressed and transit-mix plants at Deerfield, Dania and Fort Lauderdale. The firm is one of the country's largest prestressed concrete manufacturers, one of Florida's leading road contractors and a large supplier of transit-mixed concrete in the Fort Lauderdale area.

Construction of a plant tailor-made to Wright's needs took six months, but Mr. Dukes believes it was time well spent. It provided all the latitude necessary in making equipment selections and planning construction.

"This is no 'package plant' design," asserts Mr. Dukes. "The components were selected after comparing all the manufactured machines available to us. Because we bought from several manufacturers, it was necessary to give careful thought to balancing the performance of each piece of equipment with every other piece of equipment. The result here is a well-integrated, highly efficient plant to crush, screen, wash and deliver 400 tons

Please turn to page 94

Material from the feeder and primary crusher is transported to the screening tower by the main conveyor and is there divided between two three-deck screens. Oversize from the screens is routed to an impact crusher. A return conveyor sends crushed oversize back to the main conveyor or it can be transferred to a conveyor leading to a third screen (upper left)



BRYON J. PHEGLEY, Superintendent,
Duncan Mining Company

"TAKE IT FROM ME...

International® crawler is 'toughest', faster...for manganese mining!"

The authority of long experience with other leading makes of track-type tractors, backs the statement by Bryon J. Phegley, superintendent for Duncan Mining Company, Mena, Arkansas.

"I have been mining for 28 years," states Mr. Phegley, "but I don't know of any rougher tractor work than this. The International tractor is toughest and much faster than others I've used. It gives very good service."

Blasting brings down boulders that stump the ¾ cu yd shovel and block the haulers. The boss simply calls in their dozer-equipped TD-18. And in 15 minutes, or so, the pit face is clean, the haul road clear, so manganese ore mining can be resumed.

Rock-shock imposes tremendous impact loads on track frames. That's where box-section track frames, inside braced with inch-thick steel prove their stuff!

Powdery grit particles, as abrasive as grinding compound, gnaw at track parts. Electronic hardening puts a deep wear-fighting armor on track links. International track roller seals do a positive job of excluding grit from bearings—besides extending lubrication intervals up to 50 days!

Features like these are why the International crawler gives amazingly dependable performance—handling key jobs that help the mine profitably produce 1,000 tons of manganese ore per week!

For your own profit and satisfaction, discover why so many quarry-men and miners are switching to International crawlers — especially for the tough jobs like rock-moving. See your International Construction Equipment Distributor for a demonstration!

After pit clean-up, the International crawler resumes moving truck-hauled overburden out of the way. In addition to these jobs, the big crawler maintains haul roads.

Typical extra assignment for the International crawler: carving out a new haul road into the pit to reach a new vein of manganese 30 ft. below the level of the present pit floor. This road is to be 225 ft. long, 30 ft. deep, and 30 ft. wide.

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Crawler and Wheel Tractors . . . Self-Propelled Scrapers . . . Crawler and Rubber-Tired Loaders . . . Off-Highway Haulers . . . Diesel and Carbureted Engines . . . Motor Trucks . . . Farm Tractors and Equipment.

One of Duncan Mining's toughest jobs is clean-up after blasting. Their International crawler easily muscles the king-size boulders and chunks of shale from the pit to overburden dump.

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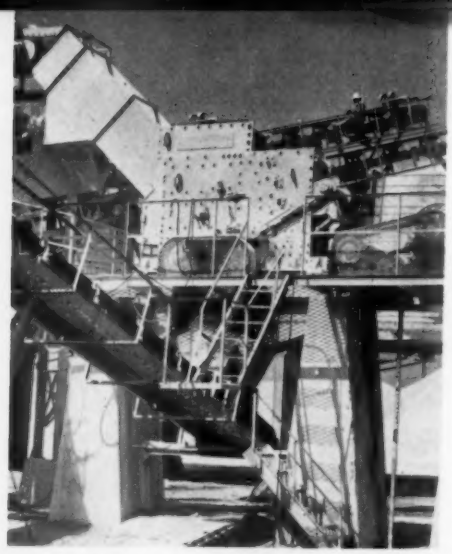

Secondary impact crusher handles the coral limestone which does not pass the top deck of the two screens

A closeup of the screening tower shows some of the walkways and handrails which give access to all machinery. Openings between the three decks of each screen permit easy maintenance

Tailor-made design

continued from page 91

of material per hour." Most of the material being produced at the plant, other than sand, ranges from ¾ in. down to ½ in. and under, with other sizes possible through a change of screens.

Put in operation in July, 1957, the Pompano Beach plant is a showplace in the rock products field because of its utilization of space and the workmanship displayed in its erection. Walkways and handrails give maintenance men and supervisory personnel access to any moving piece of machinery.

The company is working with porous coral limestone mined from water by dragline and loaded into 16-cu. yd. end-dump trucks about a quarter-mile from the plant. These dump 225 tph. onto a 9-in. pitch wobbler feeder for separating 3½-in. and under material ahead of a 30 x 42-in. jaw crusher.

Operating details. The wobbler is located beneath the truck dumping platform, and ahead of the jaw crusher. The feeder was set at an uphill incline of seven deg. in order to hold back material for a more thorough separation than they would get if it operated level. Using a variable-speed drive with 15 hp. to operate the feeder, the bars turn at 3 rpm. when the dump material contains more than 40 percent sand—and can be operated up to 23 rpm. when working primarily in rock. The material averages about 60-percent rock, but occasionally the fines will be as much as 50 to 75 percent.

All the material passing through the feeder bars joins material from the jaw crusher on a belt conveyor leading to a primary screening tower. There the belt load is divided between two three-deck, 5 x 14-ft. vibrating screens.

Oversize passing across the top deck of these two screening units goes to a 150-hp., 32 x 40-in. impact crusher for secondary reduction and delivery to a third three-deck, 5 x 14-ft. screen, or it can be returned to the two primary screens at the will of the operator.

The third screen delivers finished material by conveyor to two of four 250-cu. yd. cylindrical collecting bins made of concrete silo staves, while the sand is flumed off to a scalping tank by a double-T inverted prestressed trough. Beneath the scalping tank is a 42-in. diam., 36-ft. double-screw washer followed by a radial stacker designed by company engineers for stockpiling concrete sand. Another stacker allows stockpiling of masons sand on the opposite side from a 30-in. diam. double-screw washer. About 10 percent of the sand output is masons sand. Mr. Dukes claims the radial stack-

Please turn to page 96

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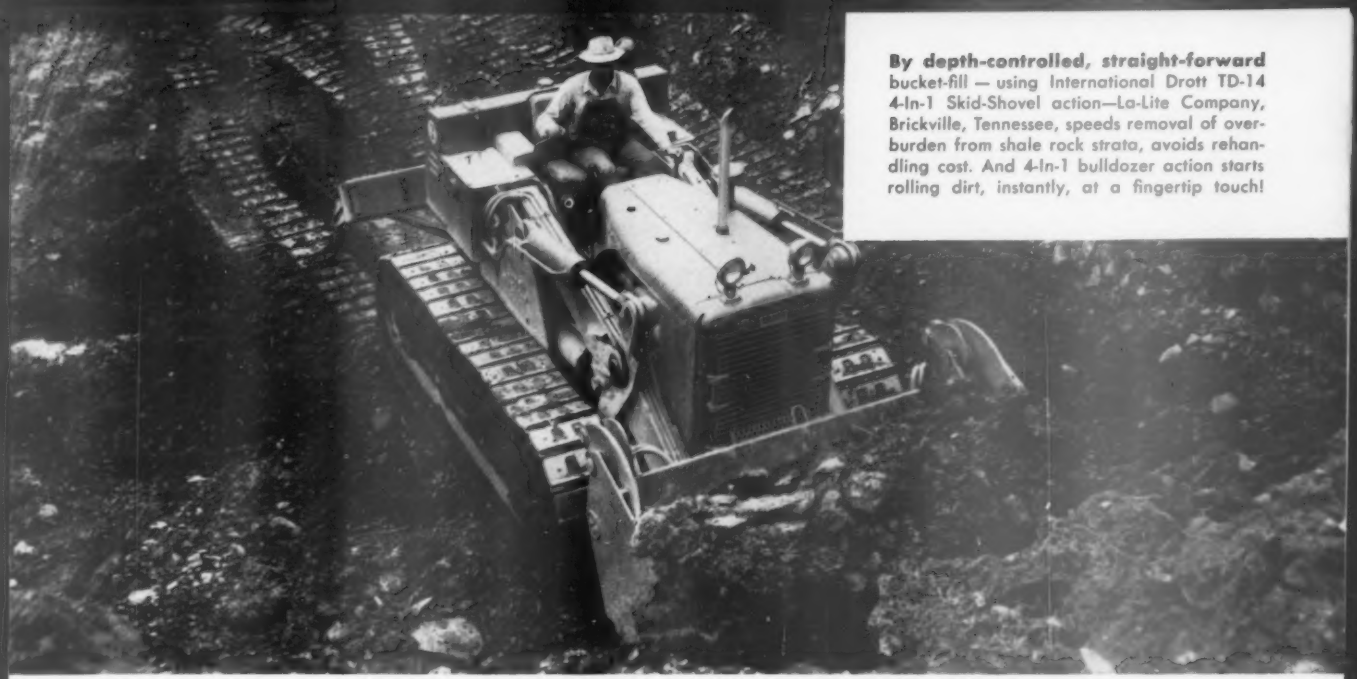

By depth-controlled, straight-forward bucket-fill — using International Drott TD-14 4-In-1 Skid-Shovel action—La-Lite Company, Brickville, Tennessee, speeds removal of overburden from shale rock strata, avoids rehandling cost. And 4-In-1 bulldozer action starts rolling dirt, instantly, at a fingertip touch!

TD-14 4-in-1 uncovers, scarifies, stockpiles and loads shale efficiently

...for Tennessee Aggregate Producer

Shale-shattering action with the International Drott Scarifier attachment saves La-Lite Company the cost of breaking-up shale deposits by drilling. The third valve, standard equipment on all International Drott outfits, provides scarifier control power.

In addition to the actions shown, the 4-In-1 also gives instantly-available, big-capacity clamshell, and carry-type scraper performance. Prove what it means to get 4-machine utility for one moderate price. Ask your International Drott Distributor for a 4-In-1 demonstration!

Takes only one minute for the TD-14 to heap-load a 6-ton truck with shale—which La-Lite Company wholesales as aggregate to building block manufacturers. Versatile performance has enabled the 4-In-1 to replace a ¾-yard shovel on this owner's operation!

Send for free catalog today

Gentlemen: My material handling operation consists of (please name): _____

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Please send 4-In-1 catalog literature checked:

☐ 1-yd TD-6 (CR-612G) ☐ 1½-yd TD-9 (CR-648G) ☐ 2¼-yd TD-14 (CR-642G)

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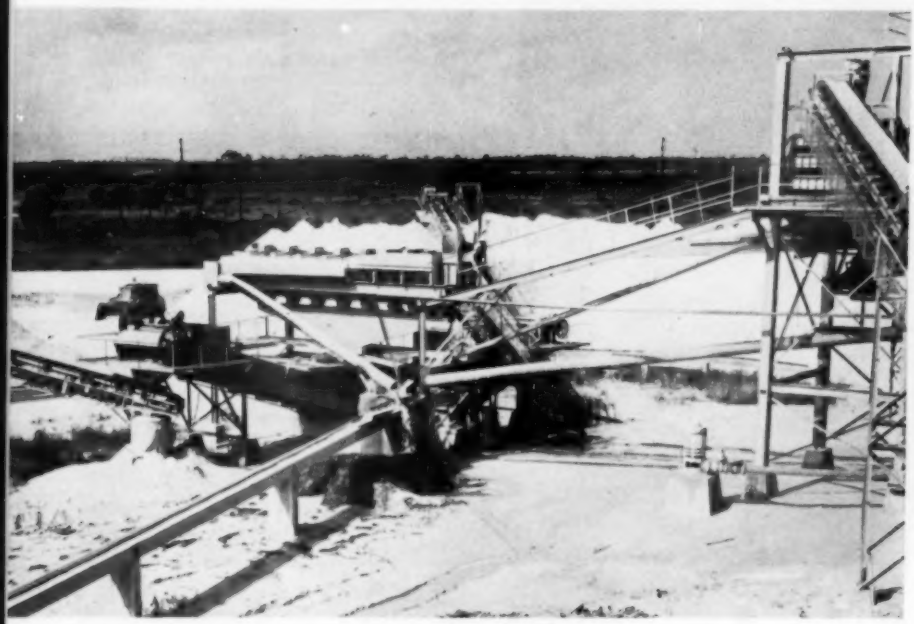

Scalping tank (center) receives sand from the third screen (right) and splits it into two grades. Masonry sand is piled in the background by a radial stacker, and concrete sand is piled off to the left by another Wright-designed radial stacker

Tailor-made design

continued from page 94

ers save him the cost of restacking a large part of these materials.

The material passing the first and second decks of the two-screen primary screening unit is delivered as finished material to the other two 250-cu. yd. collecting bins after rinsing through a 30-in. diam. single-screw washer ahead of them.

Two 125-hp. pumps and motors pass 3,200 gpm. of water through the plant. Overflow is carried by a prestressed trough and collected in a pond away from the plant, to keep the working area dry.

The entire operation—except for draglines and trucks to carry the material—is powered by electric motors. It can be operated by one man from a central location containing power terminals and switches. "We'll have a three-man operation here," claims Mr. Dukes, "just as soon as we clear up our root problem. There's a lot of vegetable matter, particularly water-logged palmetto roots, passing through the plant. We now have to pick this material off the belts."

Mr. Dukes believes the solution to the root problem is in sight with motor-driven fans he intends to mount just under the delivery end of each of the four conveyors leading to the collecting bins. These fans will take the air through the shaft housing and force it out through a hole in the circular wall surrounding each fan. The jet of air should blow root shreds free from the discharging finished aggregate as the roots come off the belts.

Located conveniently near the main conveyor to the screening tower is a building divided into maintenance shop and power control room. As for general maintenance, Mr. Dukes maintains that there hasn't been any so far on the feeder or primary crusher, and maintenance on the secondary crusher has been less than 3½ hours a day. Nor has screen-cloth wear been particularly noticeable. Plenty of screening area and ample screening capacity distributes the load across the screen decks. The decks of the vibrating screens are separated by enough space to allow a man to crawl all the way through for repair and service but so far no changes have been necessary.

Accounting in large part for this remarkable screen performance is their almost vibration-free

Please turn to page 122

MAJOR EQUIPMENT USED AT THE POMPANO BEACH AGGREGATES PLANT

Draglines (2)	
3 cu. yd.	Baldwin-Lima-Hamilton
1½ cu. yd.	Marion Power Shovel Co.
Wobbler feeder, 9 in. pitch	Universal Engineering Corp.
Crushers	Universal Engineering Corp.
Primary jaw crusher, 30 x 42 in.	Universal Engineering Corp.
Secondary, 32 x 40 in. Impact Master	Universal Engineering Corp.
Screens, three-deck, 5 x 14 ft. Vibrex (3)	Hewitt-Robins
Conveyors	Hewitt-Robins
Washers	Eagle Iron Works
42 in. diam. x 36 ft. double screw	Eagle Iron Works
30 in. diam. double screw (2)	Eagle Iron Works
Scalping tank	Engineering staff, R. H. Wright & Son
Radial stackers (2)	Engineering staff, R. H. Wright & Son

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Here's what Job Supt. Harry G. Smith reports:

"Delivery time halved"

"The '95's' have cut costs of hauling large payloads because Torqmatic braking has cut delivery time in half over the other machines." A fully-loaded Payhauler can go down the steep grades much faster than a conventionally-braked hauler. With complete safety, too!

See how Torqmatic braking gives positive load control at any practical speed—on any grade. Try "95" get-away and climb-out speed, with the wallop of 335 turbocharged diesel "horses." Measure planetary drive axle shock-absorbing advantages. Prove production-boosting Payhauler operating ease. See your International Construction Equipment Distributor for a demonstration!

"Operators particularly like '95' operating ease, riding comfort, and maneuverability," states Job Superintendent Smith. No wonder! Controls are conveniently located. Modern power steering reduces muscle strain! Shock-swallowing seat gives "club car" riding ease!

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International Harvester Co., 180 N. Michigan Avenue, Chicago 1, Illinois

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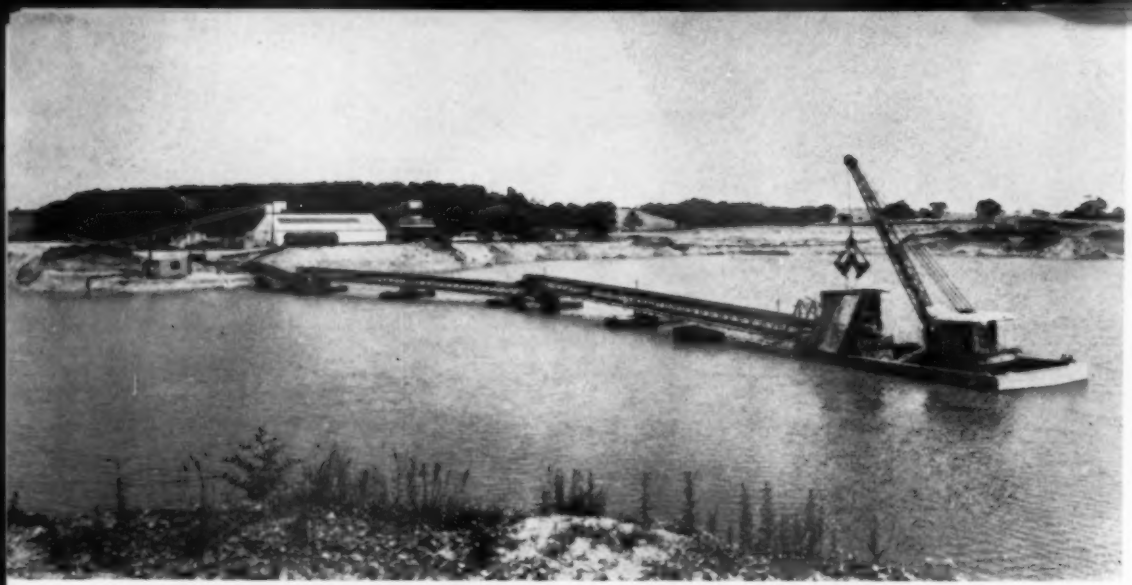

General view of the floating conveyors and the clamshell as it dumps gravel into the feed hopper. Each conveyor is 150 ft. long and mounted on three pontoons. The clamshell is also mounted on pontoons

Floating conveyors help recover "lost" gravel

By LEO WALTER

Closeup of the conveyors showing the head of the second and the tail of the third conveyor

THIS THRIFTY ENGLISH SAND and gravel firm, unwilling to waste the valuable material normally left when a quarry dredging operation is completed, has worked out a brilliant solution to the problem of recovering it. A. Braithwaite & Co. Ltd., is dredging material in its Lingerfield Quarry at Knaresborough, Yorkshire, and handling it with a system of floating conveyors.

The quarry deposit is from 45 to 65 ft. thick. Some 30 to 45 ft. of it lies below the level of the water in the strata. Down to 1 ft. above water level, aggregate is recovered in the usual way, and a dragline excavator takes the next 15 to 25 ft. It cannot go deeper because the movement of the bucket stirs the water and undermines the bank on which the excavator is standing, forcing it to retreat.

Frogmen surveyed a series of sections across the deposit to find out how much of it was left under water. The depth at which clay would be reached under the sand and gravel had been established by previously drilled boreholes. These measurements showed that about 600,000 cu. yd. was still available.

Existing methods of working gravel in deep water all had disadvantages. Large stones prevent

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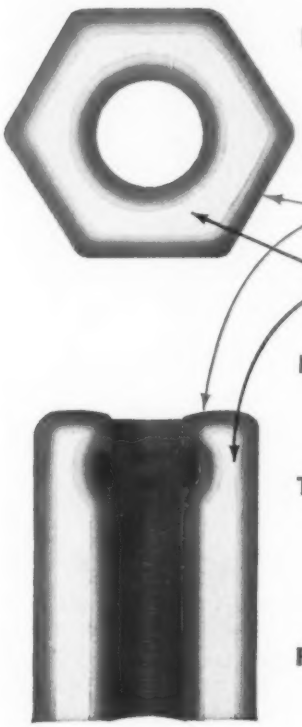
GARDNER-DENVER DRILL STEEL

Cuts drilling costs...reduces steel breakage



Made like tough rock drill parts

Gardner-Denver sectional drill steel is carburized to produce the same hard case, soft core structure that produces superior rock drill parts. Shot-peening increases fatigue resistance.

High-tensile surface strength resists abrasion, corrosion, nicking and down-the-hole gaff.

Tough, soft core provides compressive strength to withstand shock loads without breaking.

Made from quality steel

Gardner-Denver uses special alloy steels to insure uniform hardening and longer service life.

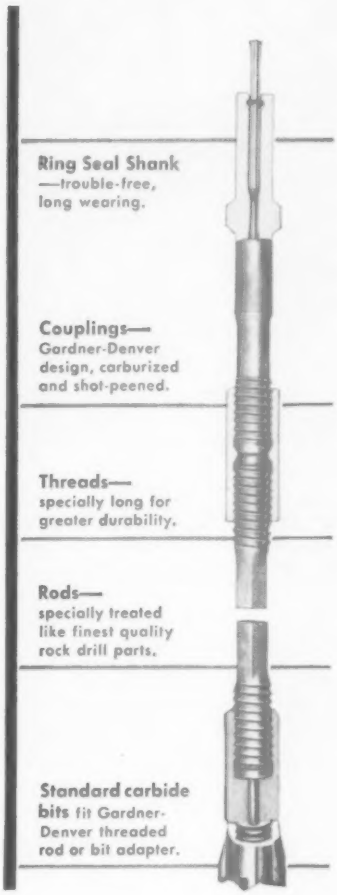
Threads and couplings designed for the job

The extra long threads and couplings of Gardner-Denver design provide greater strength and durability. Couplings are also carburized to provide a hard surface on the threads and a tough core.

Proved on the job

One user drilling hard rhyolite reports steel breakage reduced by 45% after changing over to Gardner-Denver drill steel.

Drill steel represents a large percentage of drilling costs. Gardner-Denver drill steel costs less to use. Write for information.


Ring Seal Shank
—trouble-free, long wearing.
Couplings—
Gardner-Denver design, carburized and shot-peened.
Threads—
specially long for greater durability.
Rods—
specially treated like finest quality rock drill parts.
Standard carbide bits fit Gardner-Denver threaded rod or bit adapter.

Gardner-Denver Sectional Drill Rod Specifications

	CL5-200 Series	CL5-400 Series	CL5-600 Series	CL5-700 Series	CL5-1000 Series
Thread Size	1 1/16"	1 1/4"	1 1/2"	1 3/4"	2 1/2"
Recommended Drill Size	3" and smaller	4" and smaller	4" and 4 1/2"	4" and 4 1/2"	5 1/2"
Recommended Bit Size	1 5/8" to 1 7/8"	2" to 2 1/4"	2 3/8" to 2 3/4"	3" to 4"	4", 4 1/2" and 5"
Rod Sizes	7/8" Hex.	1" Hex.	1 1/4" Hex.	1 1/4" and 1 1/2" Hex.	1 7/8" Hex.
Rod Lengths	2' to 20'	2' to 20'	2' to 20'	2' to 20'	4' to 20'
Coupling Diameter	1 7/16"	1 3/4"	2 1/8"	2 1/2"	3 1/8"
Ring Seal Shank	1" Hex. Collared 1 1/4" Rd. Lugged	1 1/4" Rd. Lugged 1 1/2" Rd. Lugged	1 1/4" Rd. Lugged 1 1/2" Rd. Lugged	1 1/2" Round	2 1/2" Round

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The first elevating conveyor at the plant

Floating conveyors

continued from page 98

pumping the gravel through a pipe; the material is too tightly packed to dredge evenly from an aerial cableway, and dredging into barges involves too much expense for equipment. A new and better way was needed.

Since the full depth of gravel could be raised by using a clamshell if it didn't stand on the precarious bank, the company mounted a bucket on a pontoon. To make the mounted clamshell free to traverse the entire pit they also mounted the conveyors on pontoons, to link it to the shore. With three floating, movable conveyors, two 150 ft. long and the one next to the shore 70 ft. long, a large area of the lake can now be reached.

When the bucket delivers to a feed hopper, the solid material is accompanied by so much water that it could pour through and flood the conveyor. To prevent this, two vibrators are mounted on the hopper, causing the sand and gravel to sink and the water to rise.

Toward the top of the hopper, the sides are made of 3/16-in. mesh to allow excess water to drain back into the lake. A vibrating tray feeder delivers to the tail end of the first conveyor, which is supported by a cantilever. The pontoons carrying the tail end of the conveyor are hinged together by two links, allowing vertical movement but keeping them aligned.

The conveyors carry belts 26 in. wide running at 200 fpm. They are mounted on structures made of steel tubes. The use of tubes saves about one-fifth the weight, and the lattice form greatly reduces the wind load. Each of the 150-ft. conveyors is floated on three pontoons, which are braced together diagonally by wires, and ballasted to have a displacement of 8 tons each and a draft of 2 ft. The engineers made allowance for gales striking a section sideways. The system has been made so stable that winds of 60 to 70 mph. have no effect on it.

The ends of the sections are linked together by a triangle made of channels. The base of the triangle is hinged to the pontoon carrying the head of the conveyor; the apex is joined by a trunnion block to a vertical pivot pin on the pontoon carrying the tail of the next conveyor.

The pivot pin is below the point of delivery, so that transference of material continues correctly when one section is slewed relative to the next. A swing of about 140 deg. can be made. The sections are secured by ropes to the shore.

The conveyors run slightly uphill, to allow enough clearance at transfer points between a fully loaded conveyor and an empty one riding higher in the water. Each conveyor is driven on the return belt by a size 50 drive.

Wind shields were found essential on both sides. They are made of 10-ga. sheeting, 12 in. high and

Please turn to page 120

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1 ONE-SOURCE SAVINGS—*ESCO* Points and Adapters are quickly available for *every digging tool* from your *ESCO* dealer. By using *ESCO* Points and Adapters on *all* your digging equipment you can reduce your point inventory, save ordering time and consolidate purchases for additional savings.

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3 POINTS OUTLAST ALL OTHERS—Because *ESCO* Points and Adapters are *cast* there is extra metal where it counts: at the wear points. *ESCO* 12M alloy steel has outstanding abrasion resistance and shock-absorbing toughness. Heat treating, differential hardening add extra-long life.

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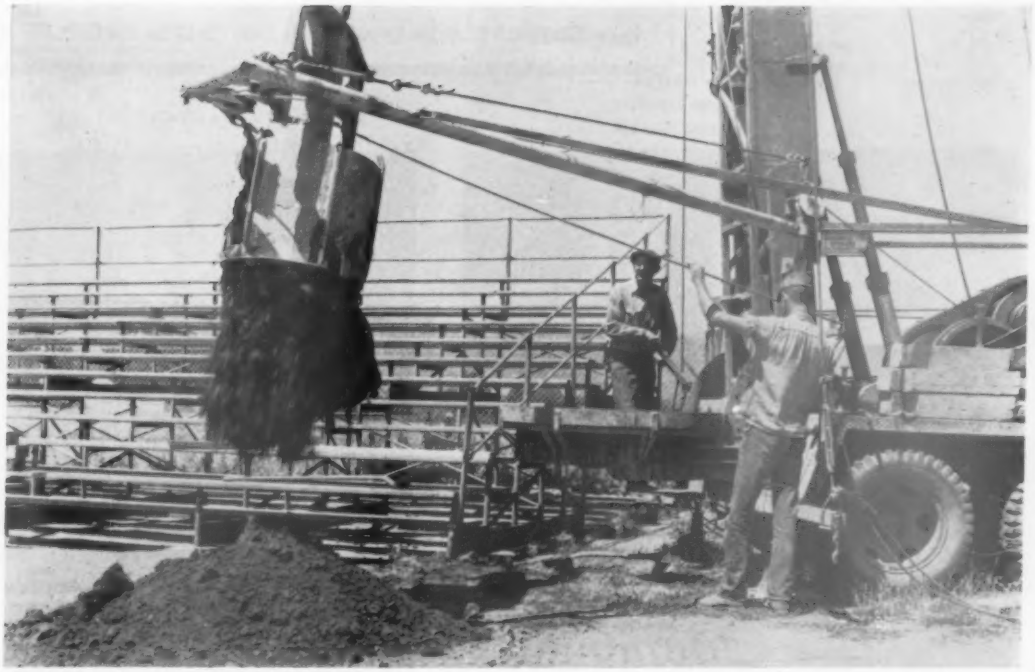

Drilling tool is a large cylindrical bucket equipped with two cutter blades into which borings advance through two radial slots. Mounted on bottom end of telescoping kelly-bar, bucket swings out to discharge borings

In exploratory testing . . .

Bucket drill yields superior data

By JOHN J. HECK

Editor's note: A machine developed to drill a better hole has been seized upon by the rock industry for its superior ability to reveal what was taken from the hole. An engineer of Henry J. Kaiser Co. here tells of their success with this earth-boring device.

SHALLOW, SUBSURFACE EXPLORATION for sand, gravel, and borrow materials has been an onerous problem until recently, because none of the techniques available could supply all the information desired. To accurately estimate the size, nature, and quality of subsurface deposits we must determine the following:

- Depth and nature of overlying stratum.
- Thickness or depth of desired stratum.
- Existence and extent of lenses of foreign materials within a deposit.
- Furthermore, we must have accurate samples from the deposit.

Exploratory techniques have usually been borrowed from other fields—well drilling and electrical and seismic geophysics. The technique described here was also borrowed—from the construction field. It is a rotary machine that bores large-diameter, shallow holes for foundations, septic tanks, and drainage and percolation shafts. Built up much like a well drilling rig, it has as a drilling tool a large cylindrical bucket (14 to 48-in. diam.) with a hinged bottom. The bottom is dished (concave up) and contains two cutter blades placed in the same position as the cutting edges on a wood auger. When compacted materials are encountered these blades can be replaced with a row of small digging teeth.

Cutting action. Two radial slots immediately in front of the cutter blades allow the borings to advance into the bucket. The size of these slots are

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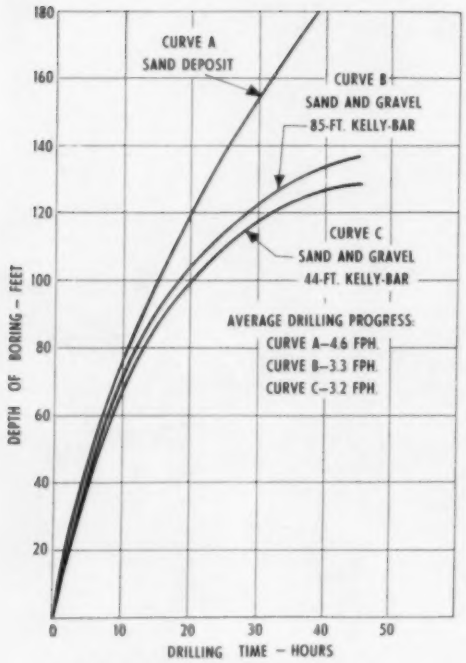

FIG. 1. TEST HOLE PROGRESS WITH EARTH DRILL

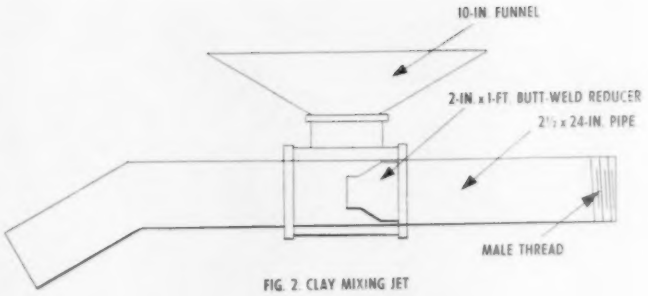

FIG. 2. CLAY MIXING JET

Bucket drill

continued from page 103

determined by the diameter of the bucket—larger buckets allow larger slots. This fact becomes very important when boring gravel pits as the slot must be large enough to pass the maximum size of gravel encountered; therefore, bucket size and boring diameter are determined by the maximum size of rock to be encountered.

The bucket is mounted on the bottom end of a square telescoping kelly-bar. The kelly slides through a square opening in a driving yoke that in turn slips through two keyways on the inside diameter of a horizontal ring gear. This gear has an inside diameter approximately 6 in. larger than the maximum bucket diameter to permit the bucket to be raised and lowered through the ring. The ring gear transmits power from a 135-hp. gasoline engine to the kelly-bar. Two ¾-in., 8 x 19 cables from a two-drum hoist over a 60-ft. mast provide for lifting and holding the bucket. A small side boom 12 ft. long, with light cable, swings the bucket and kelly out to discharge borings away from the hole.

This machine has been used to test drill to a depth of 185 ft. The telescoping kelly-bar is 45 ft. long, and when fully extended will drill to a depth of 85 ft. Below that, 4-in. round, oil-field drill steel is used. Successive lengths of 20 and 40-ft. drill steel are added between the bucket and the telescoping kelly-bar.

As the 45-ft. telescoping kelly-bar allows drilling to a depth of 85 ft. without handling steel, the progress of this portion of the boring is much faster than when one or more lengths of drill-steel have to be broken each time the bucket is drawn from the hole. If the bucket is filled at each attempt with no appreciable raveling of the wall, the hole will be advanced approximately 15 to 18 in. An advantage of this system is that samples may be taken as often as desired, up to the full depth of the bucket. Thus, a foot-by-foot analysis of the deposit can be made.

Test results. Curve B of Fig. 1 is a progress curve of the average results of drilling twenty 36-in. holes to an average depth of 125 ft. in a sand and gravel deposit where the maximum size of gravel was 3 to 4 in. and where there was an occasional rock up to 8-in. diam. This deposit was sufficiently tight so that the walls did not ravel appreciably and no casing or rotary clay was necessary to hold the hole. Average progress to the limit of kelly-bar was 6 fph. Once this point was passed the progress dropped very fast—between 84 and 132 ft., the average progress was less than 2 fph. The average progress over the total depth was 3.3 fph.

Curve C shows the average progress encountered when drilling twenty 28-in. diam. holes to an average depth of 101 ft. Rotary drilling clay was used in all holes to hold the walls. If clay is premixed and available at the drilling site there need be no loss of drilling progress.

Since these two curves do not represent the same conditions, some comment should be made. The deposits being sampled were very similar. Depth of overburden in both cases varied between 20 and 30 ft., while depth of deposit was essentially the same. Maximum size was a little larger for curve B. The main differences were in the machines and their operation.

Curve B represents a machine with a kelly-bar 85 ft. long and an inexperienced operator. Curve C

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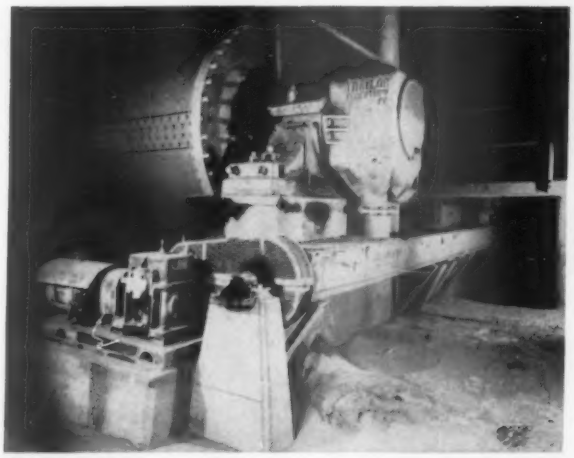
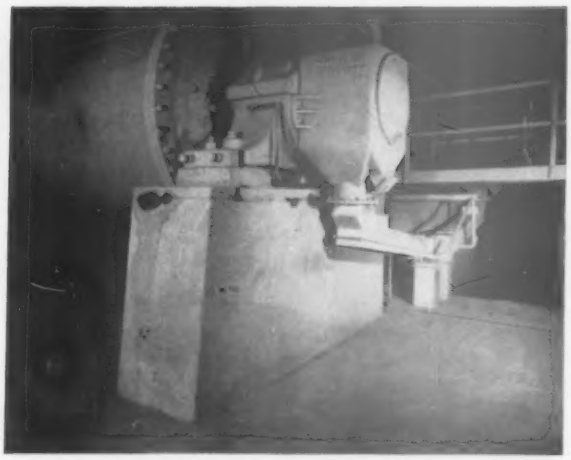
The Arithmetic of Materials Handling



BEFORE: **Dirt, noise and mechanical breakdown** were constant problems in this cement plant, where two mechanical conveyors were used to collect raw materials. A 5 h.p. motor driving auxiliary equipment wasted valuable space and power, required frequent maintenance. Spillage clean-up wasted costly man-hours.



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These materials literally flow at high speed, down the inclined conveyor. Power requirements are small.

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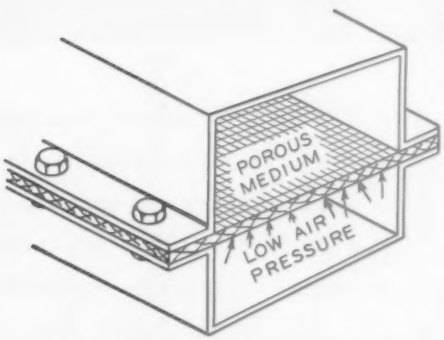

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Horizontal ring gear with inside diameter slightly larger than that of the bucket permits bucket to be raised and lowered through the ring. The ring gear transmits power from the gasoline engine to the kelly-bar, which here is almost fully extended into the hole

Bucket drill

continued from page 104

represents a machine with a kelly-bar 44 ft. long and an operator who had 3 to 4 years' drilling experience on this type machine. The longer kelly-bar definitely provides more rapid progress than the shorter bar; however, a higher mast is required which makes the rig a little less maneuverable. In comparing curves B and C this faster progress is obscured by the difference in the experience of the operators.

Curve A represents the average progress experienced in test drilling a sand deposit. A 14-in. bucket was used in all holes. Rotary drilling clay was used in some holes and not in others. Twenty-eight 14-in. holes were drilled to an average depth of 156 ft.

Holding the hole. When there was insufficient binder to maintain the walls of the hole, there were two alternative recourses—steel casing or rotary drilling clay. Steel casing was tried first, but it did not prove to be satisfactory. Operating characteristics required that the sections of casing be no longer than 60 in. These sections had to be bolted if they were to be withdrawn. This assembly time was very nearly equal to actual drilling time and so halved the overall drilling rate. Furthermore, casing could only be withdrawn from about a 50-ft. depth.

Rotary drilling clay proved to be a much better

Two cables from a two-drum hoist over a 60-ft. mast provide for lifting and holding the bucket

scheme for holding the hole. In this operation the rotary clay did not transport borings so it was not necessary to circulate it, but only to maintain a constant level. The function of the rotary clay was two-fold; it acted as a plastering agent by causing

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New president Roger E. Meshberger receives president's trophy from outgoing Charles Casper, as Ralph Simpson looks on

Indiana mineral aggregates group

—Meeting accents prospecting, public relations

ONE OF THE BIG ADVANTAGES of state and regional meetings of rock products producers is the ability of small groups of producers to concentrate on their common problems, and to get to know each other better. The meeting of the Indiana Mineral Aggregates Association in Indianapolis on April 1 gave nearly 100 producers the opportunity to consider the mutual problems of aggregates rock producers. The annual banquet of the Association brought over 400 members and guests together at the Hotel Claypool in an atmosphere of good fellowship.

William C. Rhodes of American Aggregates Corp. stated that sand and gravel producers were fighting a defensive battle against metropolitan encroachment. Producers often have only themselves to blame if they have failed to make friends with the public and their elected officials, he said. Mr. Rhodes outlined a program that any aggregates producer should follow—even before his plant is surrounded by residential areas.

This program includes many common-sense projects, recommended for all producers. Clean up all around the plant—it's not a junk yard—cut weeds, smooth drives and prevent dust. Protect property and machinery from trespassers and children, and at the same time, protect adjoining property from encroachment, noise, traffic and dust. Make sure that trucks are not either a menace or nuisance on the streets or highways; and lastly, he said, land rehabilitation is the producer's most effective weapon against restrictive zoning.

A major problem for producers is finding new sources of high grade aggregates. Two papers presented two new approaches to this problem, which go a long way toward eliminating hit-or-miss prospecting methods. P. Montano of Engineering Surveys, Inc. outlined his company's technique of airphoto surveying to identify subsurface geologic formations. Not perfect, yet this method has located sand and gravel in areas where none was ever suspected.

Dr. Robert B. Johnson of Purdue University evaluated an electrical resistivity method of surveying subsurface deposits and analyzing the formation by its resistance to an electrical current. Simply, the method uses the earth as a conductor

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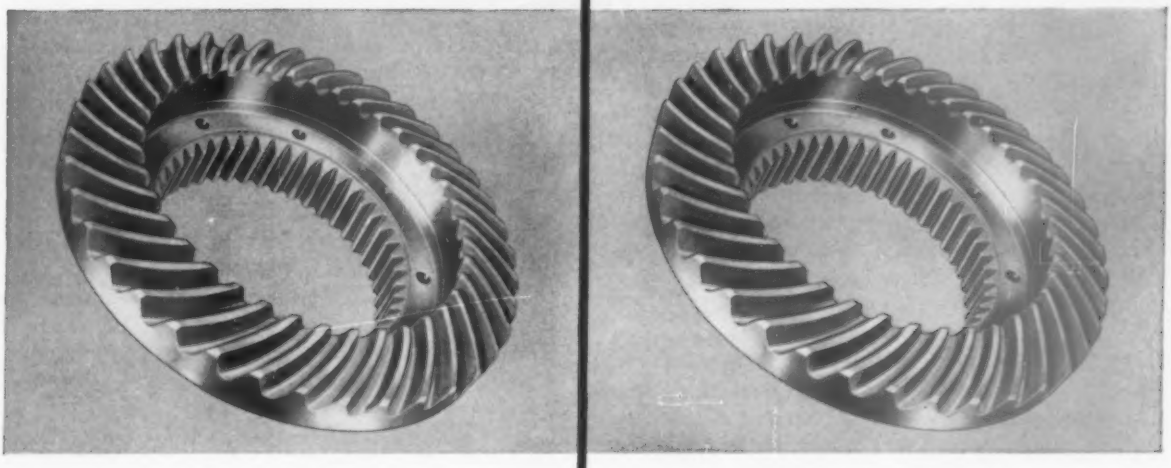
They May Look Alike . . . but they're Not!



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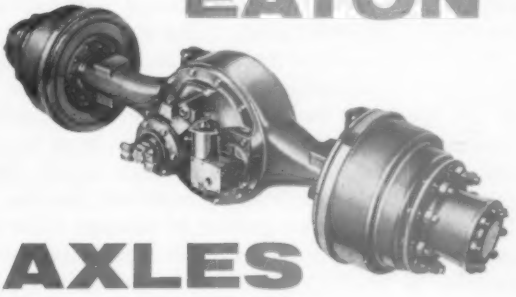
Not Made by Eaton

Only Genuine Eaton Axle Service Parts are Identical to the Original Production Components

Even Eaton Axle parts may wear out and require replacement. When this happens it is important that repairs be made with Genuine Eaton Axle Service Parts. They are identical to the original production components in design, metallurgy, heat treatment, and quality of finish—made to run together with the other axle parts. Eaton replacement parts are held to the rigid quality standards established for axle components and will deliver the same dependable, low-cost kind of service. So when, after thousands of miles of trouble-free operation, it may become necessary to replace worn parts in an Eaton Axle, it's most economical to make these replacements with Genuine Eaton Axle Service Parts.

MORE THAN TWO MILLION

EATON



AXLES

IN TRUCKS TODAY

EATON AXLE DIVISION
MANUFACTURING COMPANY
CLEVELAND, OHIO

PRODUCTS: Engine Valves • Tappets • Hydraulic Valve Lifters • Valve Seat Inserts • Jet Engine Parts • Hydraulic Pumps Motor Truck Axles • Permanent Mold Gray Iron Castings • Forgings • Heater-Defroster Units • Automotive Air Conditioners Fastening Devices • Cold Drawn Steel • Stampings • Gears • Leaf and Coil Springs • Dynamatic Drives, Brakes, Dynamometers

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Depreciation

continued from page 73

The agent isn't the last word in depreciation disputes. If you fail to reach agreement with him you should seek the advice of a tax lawyer, if you haven't already. You then can appeal the case to an IRS engineer (he'll probably back up the agent or may be even tougher); seek a conference with a group supervisor or conference coordinator; or file a formal protest within 30 days to the Appellate Division. If you're so inclined and can afford it, the case can be taken from here through the Tax Court, Court of Appeals and, finally, the Supreme Court. If a deficiency is involved, another recourse is open. You can pay it, then apply for a refund through a District Court or the Court of Claims in Washington, D.C. Usually you stand a better chance in a District Court where you can request a jury trial. Also, under this method, you won't be paying six percent interest on the deficiency if you lose the case.

Admittedly all this is expensive, time-consuming and probably unjust in the bargain. But at least these recourses are open to you. But the best place for arbitration remains in negotiation with the individual agent, if you can find some common basis on which to deal with him.

These practices are, of course, slowing down capital investment on the part of business because unrealistic depreciation allowances haven't been remotely close to inflated replacement costs for equipment. Speaking before the House Ways and Means Committee on this point recently, Travis Brown, attorney for the Associated General Contractors of America said: "The regulations indicate that depreciable life is to be set on the basis of present conditions and probable future use, as of the time the estimate must be made, rather than to be redetermined some years later on the basis of hindsight, as some revenue agents have attempted to do, particularly in recent months . . . This emphasis on recognition of salvage value apparently has led some revenue agents in recent months to precipitous action in demanding that taxpayers whose returns they are auditing set up salvage values unreasonable in amount, and that such changes be applied retroactively to prior years open to review . . . It is extremely difficult for industry to recover its capital investment in equipment and to buy necessary replacements in view of the lengthy periods of useful life and the low depreciation rates insisted on by Internal Revenue, as well as the rapid advancement in replacement equipment costs . . ."

The Internal Revenue Code, itself, has clearly announced in Revenue Rulings 91 and 92: ". . . it shall be the policy of the Service generally not to disturb depreciation deductions, and revenue employes shall propose adjustments in the depreciation deduction only where there is a clear and convincing basis for a change. This policy shall be applied to give effect to its principal purpose of reducing controversies with respect to depreciation . . . in the establishment of the depreciation rates for a taxpayer, careful consideration shall be given to facts and arguments presented by the taxpayer with respect to obsolescence, as well as to the repair and maintenance policy of the taxpayer."

It would appear that, in many instances, the government is paying only lip service to these principles. They certainly, however, give rock products producers a clear mandate to dispute arbitrary assessments laid on them by the Internal Revenue Service involving a difference of opinion on depreciation valuations.

END

Clayton Silica Co.

continued from page 81

temperature of the sand does not exceed 170 deg. F. Exhaust gases from the dryer are passed through a wet scrubber to strip micron-sized solids from the vapor before exhausting it.

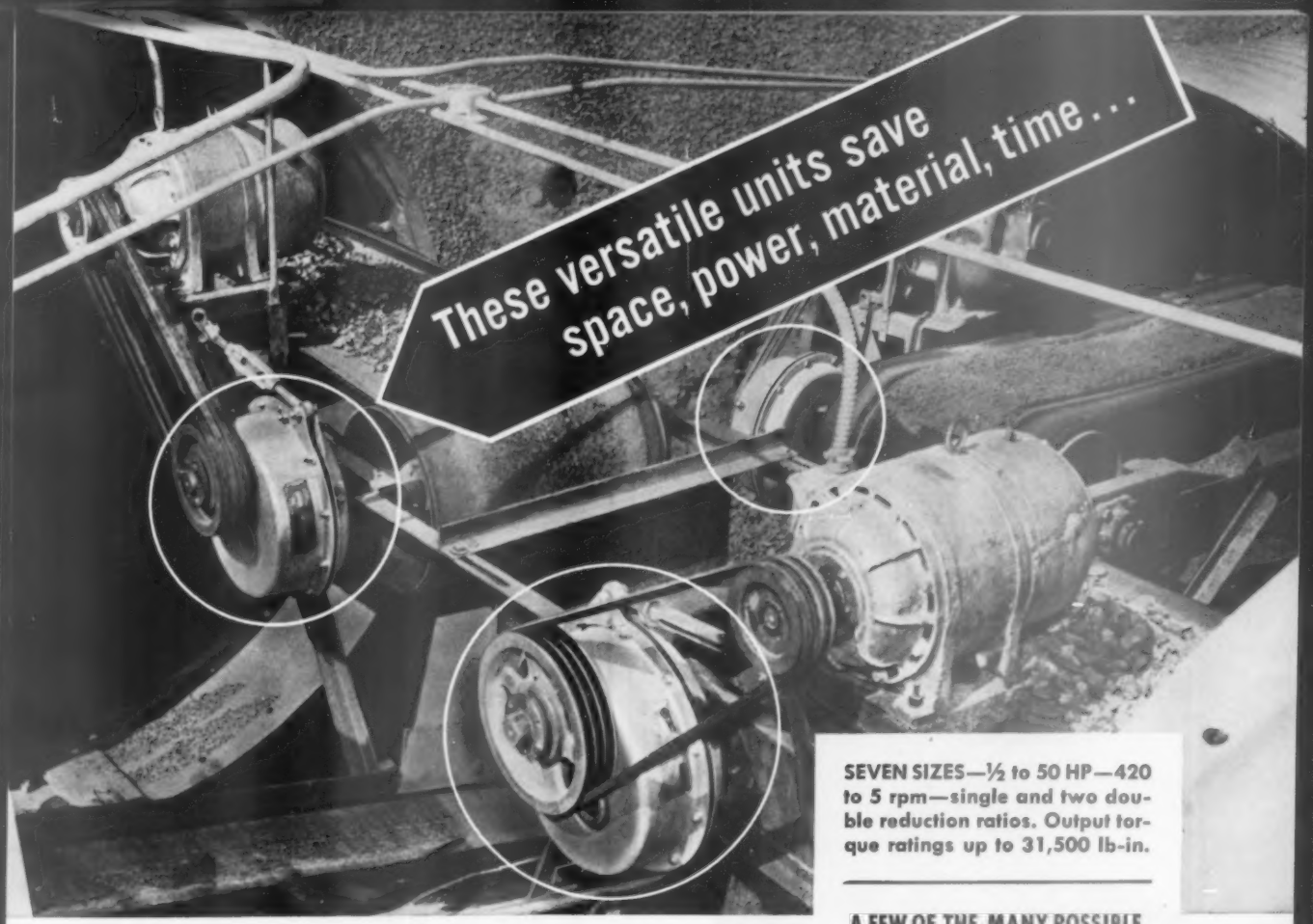
Dried silica is conveyed to a final crusher which reduces conglomerate particles to grain size. A bucket elevator lifts the crushed material to a surge bin above a battery of four 4 x 10-ft. vibrating screens. The screens scalp off plus 26-mesh sand, and belt conveyors take it back to the final crusher to be recrushed. Through screen sand is elevated to the top of the two sand storage tanks and distributed with a belt conveyor. Each steel tank is about 20 ft. diam. and holds about 1,200 tons of dry fine silica ready for processing.

The conical bottom of each bin is fitted with a belt feeder to load the inclined belt conveyor which takes the sand to the top of a "wind tunnel" classifier for size separation.

Clayton Silica makes three grades of silica at a time with the wind tunnel. Different grades of sand can be made by small variations in the air velocity. Each product is collected in a belt conveyor and elevated to the top of a storage bin, and samples are collected at regular intervals to check the effectiveness of the air classification.

The bottom of each bin is fitted with a vibrating feeder which discharges to a flat belt collecting conveyor. With the known sizes in each bin, the feeders can be operated to produce blends of sand to meet either a customer's size specification or an AFS specification number. The collecting conveyor takes the sand to a mixer which can deliver to the

Please turn to page 112



SEVEN SIZES—½ to 50 HP—420 to 5 rpm—single and two double reduction ratios. Output torque ratings up to 31,500 lb-in.

FALK ALL-STEEL Shaft Mounted Drives

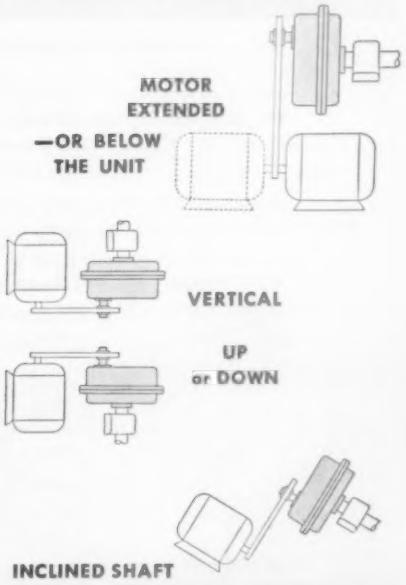
The photograph above typifies the way FALK Shaft Mounted Drives furnish the economical solution to problems of efficient speed reduction in a limited space. Within their rated capacities, these versatile reducers are designed to drive any machine and to fit any space requirement.

FALK Shaft Mounted Drives mount on the driven shafts and are connected by V-belt or chain to any convenient rotating power source. Unlimited choice of output speeds between 420 and 5 rpm is made possible by varying the ratio of driving sheaves or sprockets.

These units, with precision-cut gears of highest efficiency, use a minimum of power. They need no adjustable motor bases or slide rails; thus they save material. And, because they are readily available and easily installed or moved, they save time. Best of all, they are backed by FALK's unmatched experience in precision-gear manufacture.

Promptly available from factory and distributor stocks, from *coast to coast*. Ask your Falk Representative or Distributor for details—or write us for **Bulletin 7100.**

A FEW OF THE MANY POSSIBLE DRIVING ARRANGEMENTS



THE FALK CORPORATION, 3001 W. CANAL ST., MILWAUKEE 1, WIS.

Representatives and Distributors in Most Principal Cities

Manufacturers of

- Motoreducers
- Speed Reducers
- Flexible Couplings
- Shaft Mounted Drives
- High Speed Drives
- Special Gear Drives
- Single Helical Gears
- Herringbone Gears
- Marine Drives
- Steel Castings
- Weldments
- Contract Machining

FALK

...a good name in industry

HERE'S VISUAL PROOF . . .

Plibrico refractory linings are built for endurance

clinker cooler lining when installed

. . . and after almost 2 years service

See for yourself that despite nearly 2 years of service, this Plibrico lining hardly appears to have been in use. That's because it's a "zoned" lining, all one piece, and securely anchored. Plibrico's "zoned" lining efficiently and economically matches various refractory grades to conditions in each furnace zone. One-piece construction overcomes the needless maintenance caused by dust seepage . . . no joints for dust to penetrate. And efficient anchorage beats the vibration problem.

You can enjoy the advantages a Plibrico lining offers. See how by writing today for our catalog covering linings for calcining, drying, and processing furnaces.

Plibrico REFRACTORIES ENGINEERING CONSTRUCTION

PLIBRICO COMPANY • CHICAGO 14, ILL.
Plibrico Sales & Service in Principal Cities

Enter 1214 on Reader Card

Clayton Silica Co.

continued from page 110

bulk loading dock or to a bagging machine. The conveyor is reversible to permit truck loading.

Exhaust air from the wind tunnel passes through a three-compartment bag filter to remove the very finest material. Two sections of the filter are always in operation while the bags in the third compartment are being rapped and discharged.

Representative Chemical Analysis
All Grades

Silica	99.48
Iron oxide	.086
Aluminum oxide	.089
Titanium dioxide	.025
Zirconium oxide	.009
Calcium oxide	.016
Magnesium oxide	.007
Sodium oxide	.12
Potassium oxide	.035
Loss on ignition	.13
"B" Sintering point, deg. F.	2,875

All equipment in the plant which generates dust is housed and each housing or building is vented by suction hoods to one of the two large bag filter dust collectors in the plant. All working areas are kept clean with huge mobile vacuum cleaners which maintain good housekeeping conditions at all times. All belt conveyors and the concrete floors are flushed out and hosed down every night.

The Clayton Silica plant is operated by 26 men in the mine, processing plant and laboratory under the supervision of Dean Jones.

END

Good public relations

continued from page 83

struction workers, cement mill employes, some steel mill employes, building supply workers and truckers.

Public relations methods.

Q. How can our industry best improve its public relations?

A. Through self-evaluation, better housekeeping in plants, and rehabilitation of worked-out land.

Please turn to page 114

Another Customer Speaks

"most PLEASED"

WITH EFFICIENCY and EXTREME DURABILITY

—W. S. COWAN, Mgr.

WINNIPEG, MANITOBA

Mr. Cowan and his airplane which he uses to travel back and forth between Winnipeg and Black Island.

SELKIRK SILICA CO. LTD.

PURE SILICA SAND

HEAD OFFICE:
216 AVENUE BUILDING — PORTAGE AVENUE
WINNIPEG 2, MANITOBA
TELEPHONE WH 3-0274

February 28th, 1958.

Thomas Foundries Incorporated,
P.O. Box 1111,
BIRMINGHAM 1, Alabama.

Gentlemen:

In our new silica sand operation we naturally wanted maximum production and lowest possible maintenance cost. We also wanted the very best equipment available. We therefore bought a Thomas "Durable" Dredge Pump, 8" Discharge, for the difficult job of pumping this silica sand to barges 1,750 feet away. We are extremely glad that we made such a wise selection.

After pumping a complete season with no maintenance whatever and no down time for repairs, your pump has already exceeded our expectations as regards loading time.

We are most pleased with its efficiency and its extreme durability.

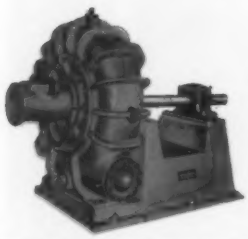
We expect to discuss other pumping operations with your representatives in the near future.

Yours truly,

SELKIRK SILICA CO. LTD.

W.S. Cowan,
Manager.

WSC:mm



THOMAS Durable Dredge Pump

From Black Island on Lake Winnipeg, 80 miles north of Winnipeg, Manitoba, Canada, Mr. Cowan's Company produces a high quality silica sand. A Series HL, 8" discharge, THOMAS Durable Dredge pump conveys the sand from the sump to 1000-ton capacity barges ¼-mile out in the lake, filling a barge in 3 to 4 hours. These loaded barges are towed to Selkirk where the sand is washed, screened, sized and delivered to industrial users.

Read his letter above. Here is another case where the extremely durable and efficient Thomas pump astounds its owners by producing high grade silica sand throughout a full season —TOTALLY WITHOUT COST for maintenance parts and materials and TOTALLY WITHOUT down-time delays for repairs.

This Canadian operation proves again the fact that "You can not buy at any price, a more durable pump for sand and gravel. You can not buy any other pump that will make you as much money."

Write for details and free descriptive literature.

Loading a Selkirk 1000-ton sand barge.

THOMAS FOUNDRIES, *Inc.*

P. O. BOX 1111 . . . . BIRMINGHAM, ALABAMA

Enter 1346 on Reader Card

Good public relations

continued from page 112

Q. Shall we do this individually or collectively?

A. The committee strongly recommends both. From the zoning angle, it is necessary to convince city officials, county commissioners and state highway officials of the economic importance of the industry through joint advertising.

Q. Should our employes be as proud of our business as we are?

A. They will be if the company does an intelligent job of pointing out the similarity of interest of the company and its employes. It should be remembered that plant employes can do effective public relations work for the company through their contacts at church and in social groups.

Q. Would politicians pay attention to public interest in our efforts to avoid an increased tax burden?

A. As zoning laws now exist, final decisions rest with county commissioners. These officials should be made aware that unwise zoning laws are costly to the taxpayers. If zoning laws keep quarries and gravel pits a long distance from cities, higher transportation costs will raise the price of materials used in public improvements.

Q. Is public relations worth the effort?

A. A perfect balance in public relations versus zoning and depletion would enable the gravel and stone industries to serve the public more economically and efficiently.

Q. What is the value of geological research in respect to zoning?

A. Geological research might establish facts proving that zoning, as it exists today, may create an economic hardship in the future because of increased transportation and handling costs of materials.

Q. Is a state-wide master zoning plan feasible?

A. State highway departments should be advised of the fact that sources of natural aggregates are limited. This would show them the need for a state-wide master plan in the zoning of mineral resources.

Q. Is a public relations program essential?

A. The stone and gravel industries must launch a public relations program now. Before long, it may be too late. Almost every large business in the country has profited by such a program. Don't put off today what should have been done a long time ago!

END

DOMESTIC MINE PRODUCTION of crude gypsum during the third quarter of 1957 totaled 2,509,345 short tons, according to the U. S. Bureau of Mines.

when the stone comes tumbling down...

HENDRICK PERFORATED PLATE STANDS UP!

Hendrick H Quality Steel Plate stands up under the toughest, heavy-duty screening of crushed stone. It's made from high carbon or stainless steels. High carbon can be heat-treated after perforation for longer life. It screens faster and easier, while full openings eliminate blinding. Product uniformity is assured throughout the life of the screen. Deck changes are quick, for lowered labor costs.

Hendrick H Quality Steel Perforated Plate is available either flat, corrugated or stepped, in any desired shape, and with perforations of any size.

HENDRICK MANUFACTURING COMPANY
47 Dundaff Street Carbondale, Pa.

Perforated Metal • Perforated Metal Screens • Wedge-Slot Screens • Hendrick Wedge Wire Screens • Architectural Grilles • Mitco Open Steel Flooring • Shur-Site Treads • Armorgrids • Hydro Dehazers • Distillation Column Internals

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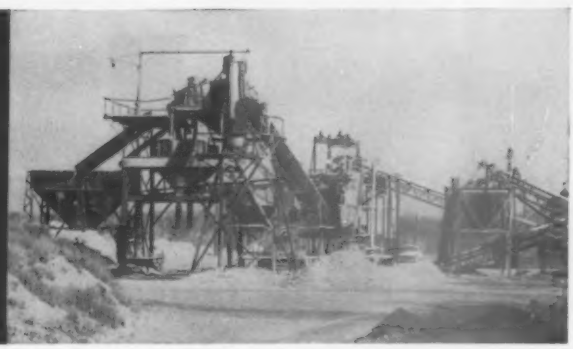
"to keep grizzly materials moving, we had to have three men pushing and shoving,"

reports Mr. Ray Holman, Quarry Superintendent, Quartzite Stone Company, Inc. of Lincoln, Kansas.

"JEFFREY grizzly feeders increased production at each plant 30 tons per hour... a 30% increase"

The Lincoln Plant installed a 5' x 10' long Jeffrey grizzly feeder in September, 1949.



Quartzite Company's Wolf Creek Plant added a similar Jeffrey grizzly feeder in May, 1952.

Grizzly materials are often difficult to keep moving here, especially when they're wet. Even with three men on these bar screens, rock didn't get to the crushers as fast as these plants could handle it.

Addition of Jeffrey electric vibrating feeders eliminated the need for the three men at the grizzlies and permitted later operations to work at capacity. Mr. Holman estimates that each plant was able to boost production by 30 tons—to 125 tons per hour.

Regarding maintenance on this Jeffrey equipment, he says, "Nothing beyond renewing the grizzly bars occasionally."

THE JEFFREY MANUFACTURING COMPANY • Columbus 16, Ohio

JEFFREY

CONVEYING • PROCESSING • MINING EQUIPMENT
TRANSMISSION MACHINERY • CONTRACT MANUFACTURING

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Shown here, INTERNATIONAL model RDF-230-H six-wheeler. Gross vehicle weight, 60,000 lbs.; gross combination weight, 90,000 lbs. Built from the ground up to absorb severe shock loads, stand up under the most extreme conditions. Other off-highway six-wheelers available: V-Line models with up to 257 hp. V-8 engines, conventional and COE models, plus a complete selection of all-wheel-drive models.

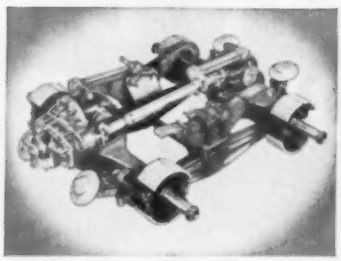
Here's the unique double-duty INTERNATIONAL Travelette with rugged 4-wheel-drive. It seats six big people in all-weather comfort in two full-width seats. Hauls up to a full ton load in its all-steel 6-ft. pickup body. Also available with standard drive or factory installed service-utility body that offers bulk load space plus time-saving compartments for tools and gear.

INTERNATIONAL TRUCKS

Day-after-day dependability

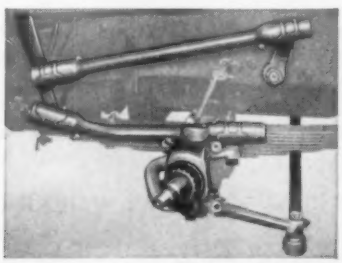
Just one reason why you'll find International Trucks cost least to own!

Rugged extra-heavy **fenders**, bumper and grille guard *built* to stand up under the most severe working conditions.

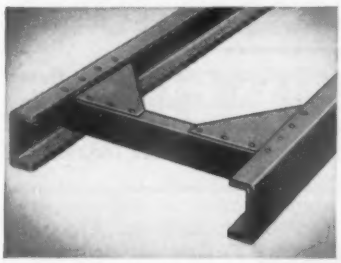


Plenty of pull with sturdy, long-lasting tandems that provide extra flotation, positive traction on any terrain.

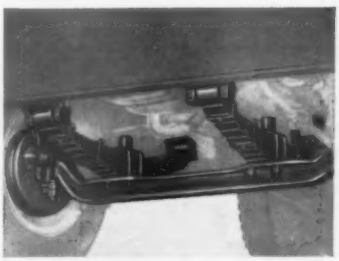
Cummins diesel power. NH-180, 180 hp. high-torque, high quality engine standard. Other diesel options to 250 hp.



Easy to handle even in tightest spots with true geometric power steering, cam and roller-mounted steering gears.



Plenty of strength. Heat treated alloy double channel frames have extra rigidity and proper flexibility for added life.



Maximum load and life. Heavy-duty, 15,000 lb. capacity heat treated steel front axle cuts maintenance and downtime.

INTERNATIONAL **Trucks** are *built* to handle the big loads with ease—specialized on the manufacturing line to *keep* off-highway operations on the move day in and day out!

Extra-heavy components shrug off brutal load punishment. Low-cost diesel power pulls all wheels through sand, sinkholes or mud with profit-making fuel economy. What's more, *these* heavy-duty diesels are backed up by a power train that matches engine, truck, load weights and job exactly.

The result: You put more money in the bank because you haul extra-weight loads with less on-the-job cost and work-stopping downtime.

Your drivers will like them and you'll like them. See your INTERNATIONAL Dealer now. He's ready to help you choose the right truck for your job . . . the truck that costs *least* to own,* from the world's most complete truck line!

**Signed statements in our files, from fleet operators throughout the U. S., back up this statement.*

cost least to own!

INTERNATIONAL HARVESTER COMPANY, CHICAGO

Motor Trucks • Crawler Tractors
Construction Equipment • McCormick® Farm Equipment and Farmall® Tractors

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What's Different About

MURPHY DIESEL POWER?

NO OTHER ENGINE IN MURPHY'S SIZE AND POWER RANGE CAN GIVE YOU ALL THESE FEATURES

"TRUE" DIESEL OPERATION—Unlike most other small diesel engines, Murphy Diesels operate as "true" diesels. This advantage comes from Murphy's Unit Fuel Injection, open-type combustion chamber, and other advanced design features.

INSTANT RESPONSE WITH HIGH-RISING TORQUE—Murphy's exclusive Hydraulic Servo-Type Governor harnesses lubricating oil pressure to adjust injector controls for instantaneous response to load change. It means more tons per hour.

LOWER FUEL CONSUMPTION—The combination of Murphy Diesel's plain, open combustion chamber and unit fuel injection assures *complete* combustion. You get maximum power from each drop of fuel, with less engine wear, and cut the cost of production.

MORE WORKING POWER—Murphy Diesel is a heavy-duty engine, with working power to take the toughest conditions in stride. Four valves per cylinder give greater breathing capacity than conventional 2-valve design and permit higher power output. Cooler-running engine and almost unlimited valve life cut maintenance and operating costs.

These Murphy features are among the many big reasons why Murphy Diesels are gaining wider acceptance with contractors everywhere. In addition, you can select from a wide range of sizes in either full diesel (96 to 264 HP), Dual-Fuel models (144 to 230 HP), Generator Sets (64 to 165 KW), or Mech-Elec Units for delivering electrical and mechanical power separately or simultaneously. See your Murphy Diesel Dealer today.

MURPHY DIESEL COMPANY

5315 W. Burnham St., Milwaukee, Wisconsin

SALES . . . PARTS . . . SERVICE

Throughout the Nation

384 RO

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More dams abuilding

continued from page 86

to be used at the Glen Canyon dam had not been selected when this article was written, although about 60 are said to have been tested.

The tendency of most concrete technicians to use less and less portland cement has stimulated dam builders to use dirt fill for many of the embankments. Dams on the upper Missouri River use dirt fill in the 100,000,000-cu. yd. range. Literally mountains of dirt are thrown across the canyon streams, with concrete, for spillways, power houses, pentstock tubes, etc.

In constructing a dirt-fill dam several "zones" of material are placed in the structure. The zones are roughly parallel to each other and to the long axis of the dam. The upstream zone may be of jetty stone or rip-rap installed so that wave action cannot eat away the dirt fill. The downstream face may be similarly treated to prevent erosion.

Of the several intermediate zones, two or more are of water-impervious material and one is of open structure. The latter can be near the center of the dam with drainage outlets through the downstream areas of the dam, so that if any leakage does occur it cannot build up undue pressures.

The impervious material is usually a pit blend of clay, sand and gravel. The more open material can be coarser sand and gravel, with little clay. The separation of these two components to meet the demands of the great yardage being handled has caused the introduction of several types of vibrating grizzlies.

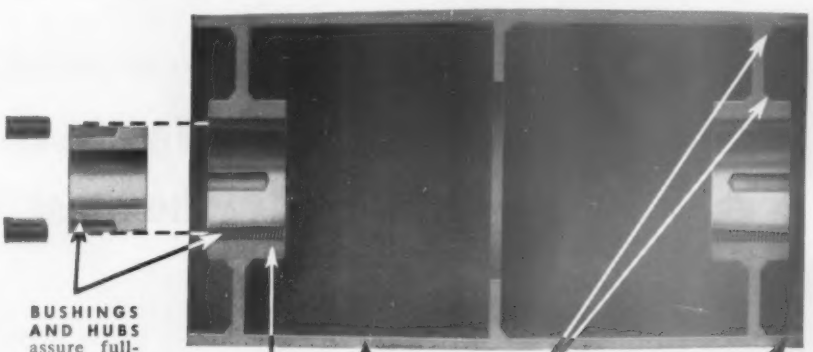
The use of pozzolanic agents in concrete seems to ebb and flow like the tides. The crest of this use is apparent in the present flurry of dam building. A few years ago a four-bag mix was standard. Then came three bags plus a pozzolan, followed by three bags and no pozzolan. Now two-bag mixes plus pozzolans are proposed. Engineers even talk about high-quality concrete with portland cement in the one bag-plus range.

Hungry Horse dam made technical headlines because of the use of fly ash as a pozzolan, essentially replacing one sack of portland cement. The mass concrete was a two-bag mix, plus the pozzolan. For the last 20 to 30 ft. of the structure, no fly ash was used because it was found that the fly ash concrete would not stand up in the cold climate. Glen Canyon will use a two-bag mix plus a pozzolanic agent.

END

These features make LINK-BELT welded steel pulleys . . .

BEST FOR YOUR BELT CONVEYORS


BUSHINGS AND HUBS assure full-compression grip.
MINIMUM OVER-HUNG LOAD. Bearings can be mounted close to hubs.
PURE RUBBER LAGGING is vulcanized to pulley for life.
SUBMERGED ARC WELDS have strength equal to joined members.
MINIMUM RIM OVERHANG prevents collection of dirt.

Taper lock bushings . . . all-steel construction . . . exact alignment — features like these make easy-mounting Link-Belt welded steel pulleys best for your belt conveyors. They're available from 6- to 60-in. diameters. 12- to 66-in. faces with bushings for 15/16- to 10-in. shafts. Immediate delivery in every industrial area from your Link-Belt factory branch store or authorized stock-carrying distributor.

EASY ON . . . Insert bushing in hub, align holes and keyseat, slide shaft in place. Insert and tighten screws in holes threaded in hub.

EASY OFF . . . Remove screws, screw one into hole with half-threads in bushing. With bushing released, shaft can easily be slipped off pulley.

LINK-BELT

WELDED STEEL CONVEYOR PULLEYS

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. 14,284

Enter 1210 on Reader Card

Automatic kiln burning

continued from page 77

previously, and then trimmed by the oxygen recorder-controller.

Any shift in the optimum temperature at the control point, approximately 110 ft. from the beginning of the burning zone, where the exothermic reaction begins, causes an immediate response in the fuel flow, and a proportional change in the primary and secondary air. This response is much faster than is possible for a human operator, particularly when he is trying to deduce conditions in the critical center of the kiln from temperatures obtained at the firing and exhaust ends.

The Calaveras system of controlling the mix temperature at the calcining zone is working well after five months of continuous operation. Already substantial improvement in firing efficiency and product quality have been achieved.

END

Floating conveyors

continued from page 100

8 ft. long, held by detachable straps. A walkway runs along one side of the conveyors.

The motors are supplied with power through rubber-covered armored cable slung inside the structure. The starters are on shore near the head of the third conveyor. There is an isolating switch near each drive. Lights have been placed along the walkway.

The output is brought from the dry face by belt conveyors. A dumper truck empties into the hopper above the conveyor. The large stones are rejected by a 9-in. square grid. A chute has been arranged to take these large stones into a jaw crusher in front of the hopper, astride the conveyor. The crushed stone falls onto the belt, where it joins the main feed. This method of working has proved highly successful under the conditions for which it was devised.

END

Bucket drill

continued from page 107

a thin film of clay on the wall surface, and it created a dense liquid column in the hole that maintained an outward pressure on the walls. This rotary drilling clay was made by mixing nine parts of finely ground clay and one part bentonite with water. The bentonite provided the plastering agent and the clay was used as a densifier. Mixing was

Please turn to page 122

"Our equipment keeps on rolling—

We use Colmonoy No. 2, the Best Hard-Facing!"

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Bucket drill

continued from page 120

accomplished with a small, high-pressure pump and a water jet (shown in Fig. 2). Water was pumped through the jet while the clay and bentonite were added through a funnel and recirculated until the mixture achieved the proper consistency. The consistency required depends upon the characteristics of the particular material being tested. Most generally, the drilling clay has the consistency of thick cream.

Accurate sampling. Test-boring with this machine provides the information desired when investigating the possibilities of a subsurface deposit. The depth of overburden can be determined within inches even if the interface is below the ground-water table. The exact depth and thickness of any interlying lenses of foreign materials (clay, silt, soil) can be determined. The exact depth of interface between deposit and underlying stratum can be located.

The most important feature, however, is the ability to select a representative sample from any portion of the boring. The use of rotary drilling clay does not affect appreciably the clay content of the sample. This drilling clay will remain suspended in water for long periods of time, particularly when constantly agitated by motion of the bucket. If bucket is not withdrawn until full, the clay solution will remain in the hole. In effect, the sample is dug from under the clay column.

END

Tailor-made design

continued from page 96

operation. The screens come to standstill almost instantly because reverse switches stop screen action when the plant is shut off. These switches control the time until the reverse takes over and reverse action is applied. As a result, screen tower maintenance is reduced through almost complete elimination of undesirable vibration.

Viewing the plant in operation, Mr. Dukes admits getting a lot of personal satisfaction from the freedom to carry out his own ideas. Moreover, the results achieved have met with the full approval of management. "With some modifications that a plant on paper nearly always requires," he said, "our installation here was put together just the way it was laid out. In all sincerity, I don't see how this plant could be improved upon for the kind of material we're processing. If I were to do it again, I'd build the same kind of plant the same way from the same set of drawings."

END

AIME group meets

continued from page 89

posits by loosening and heating to release the oil directly.

4. Production of fill and rip-rap for road construction and other uses.

A second paper falling in this group is that of R. E. Wood, of the Kennecott Research Center, Salt Lake City, Utah, on "X-Ray Mineral Analysis Techniques." (See the March issue of ROCK PRODUCTS for a description of X-ray techniques at a Western cement plant.)

Of interest to any mineral operation involving crushing is a paper by Wilbur E. Moulton, district testing engineer, Pacific Cement & Aggregates, San Francisco. Mr. Moulton spoke on "The Application of Crusher Fines in Asphaltic Concrete."

"Test results show that the minus four mesh portions of crushed rock, regardless of rock hardness, type of crusher or number of consecutive crushings, grade substantially the same," he said.

A paper on the applications of industrial minerals in atomic reactor construction and operation was prepared by Patrick J. Selak and Dale M. Johnson, Nuclear Engineering Development, Kaiser Engineers, Oakland, Calif. With slides, Mr. Selak showed the essentials of an atomic reactor, pointing out that in the biological shield, special concretes are often used, since these slow down the neutrons and have high absorption properties. Heavy concrete uses portland cement, sand and gravel, barytes, magnetite, limonite, iron ores and iron punchings.

At the final meeting, the engineers awarded their Lansing Medal to Robert A. Huggins of Stanford University. Mr. Huggins, an assistant professor of metallurgy, was selected as the young man with the greatest promise in his field.

END

Indiana meeting

continued from page 108

between two terminals of alternating current. The measured resistance is an indication of the resistance of the material below the surface; the actual depth of measurement is a function of the distance of the two terminals.

In a simultaneous session, the limestone producers discussed agricultural limestone problems, production and marketing, with a panel of specialists from the Agronomy department of Purdue University.

New officers of the association include Roger E. Meshberger, president; E. H. O'Brien, vice president; Myron G. Johnson, secretary-treasurer; and the genial Ralph Simpson continues as engineer-director of the association.

END

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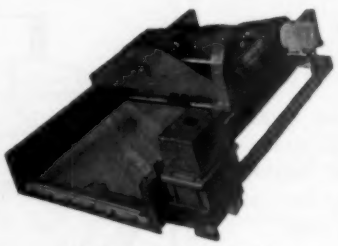

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Elsewhere in this issue is a special form to make it easy to subscribe for a friend or employee. Why not pass along the form to people you think should be reading ROCK PRODUCTS every month.

ROCKY'S NOTES

(Continued from page 19)

local accumulations of deep-seated radioactive atomic isotopes in minerals. Under natural conditions it takes geological periods of time to attain sufficient heat to fuse the subsurface rocks and cause a volcanic eruption, but possibly the same effect could be accomplished instantaneously by the heat and energy supplied by atomic or nuclear explosives. Such a scheme would not only supply the necessary heat but the penetration of the surrounding rock with fractions of atoms, the protons, electrons, alpha and beta rays, etc., from the explosion, could very well completely change the character of such rocks, creating other kinds of chemical elements and entirely different minerals. It is certainly a fascinating subject to contemplate in the light of nuclear chemistry.

It might well be that the scheme the Russians possibly have in mind to warm their subpolar territory is through the generation of steam power in some such manner. A warm soil is quite as important to agricultural production as warm air and sunshine. With plentiful steam supply, it is evident the warming of a vast acreage of soil is not an impossible project. But an agricultural northern Siberia would evidently hasten the glacial period predicted by the scientists already quoted, since it would provide more moisture to the easterly winds that deposit snow on the frozen Arctic Ocean above the North American continent.

Another ice age, however, according to these scientists is not without some compensations; it is suggested that the major desert regions of the Earth—some 12,000,000 square miles—would become watered, arable and fertile. The Sahara Desert in North Africa, for example, would become the garden spot of the Earth, as perhaps it once was. No wonder the Russians seek a foothold there!

The point is that our planet is undergoing constant physical change, without any help from mankind. The chief difference between now and the last Ice Age is, that there are a great many more millions of human inhabitants, and some of those inhabitants have apparently learned enough about the planet we all live on to be able to take a hand in such possible changes, for better or for worse. Destruction by nuclear explosives and radioactive dust from military bombs are not the only things to fear.

Returning for a moment to the project for a riprap jetty off the southeast point of Greenland, discussed in our

(Continued on page 128)

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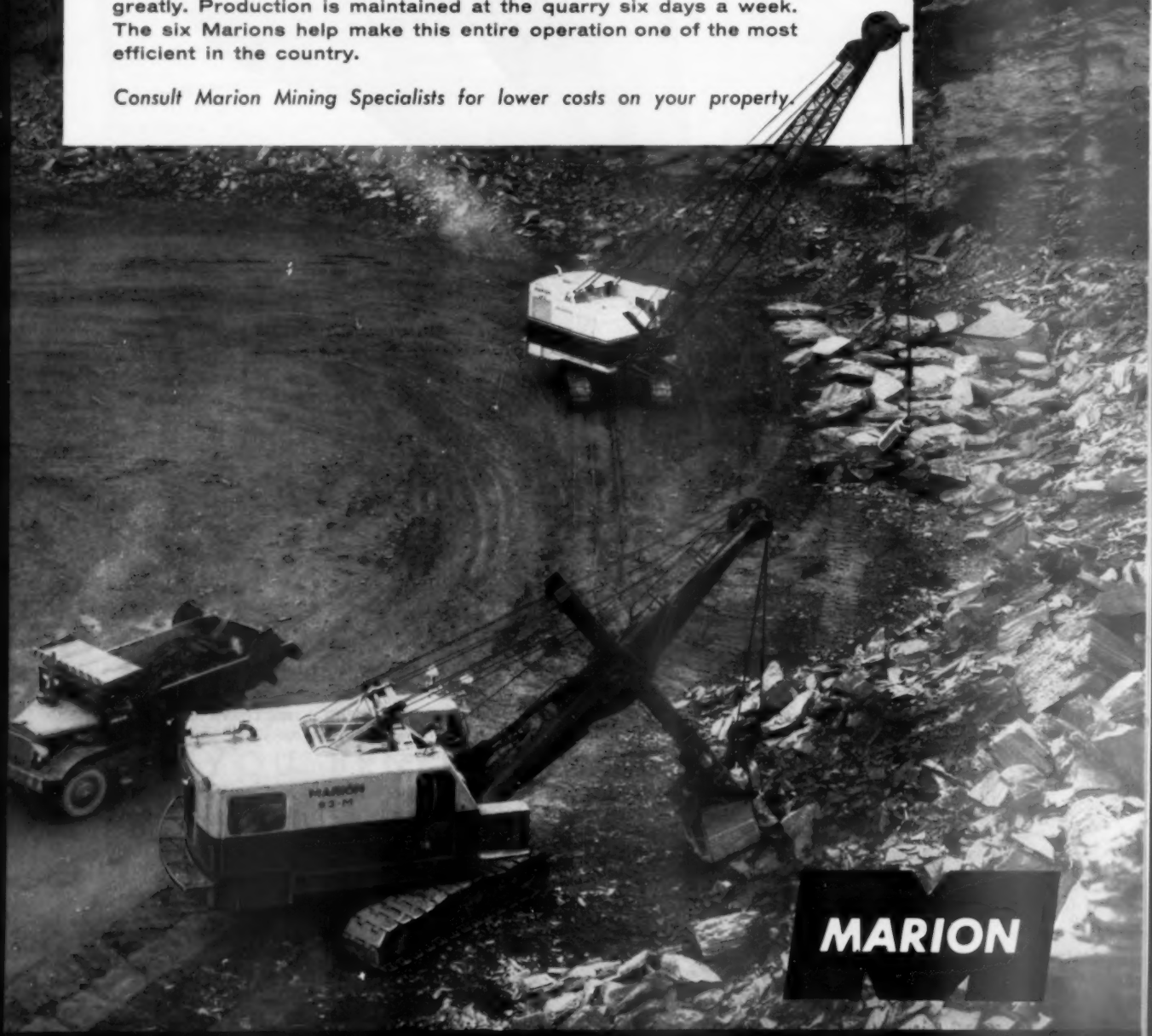

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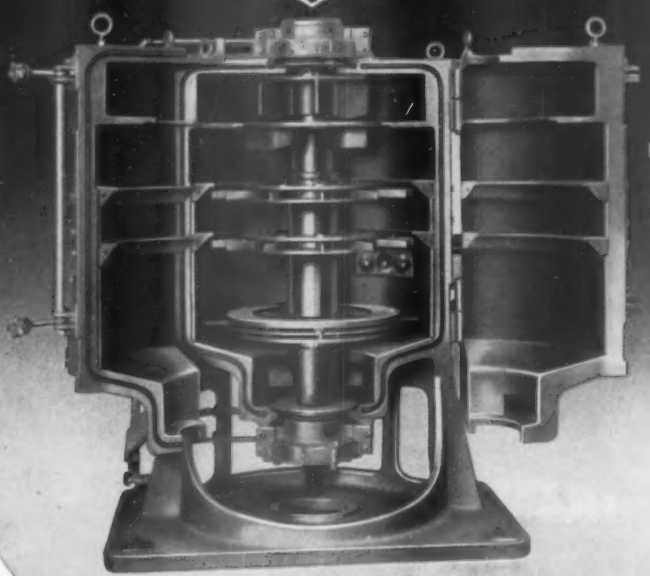

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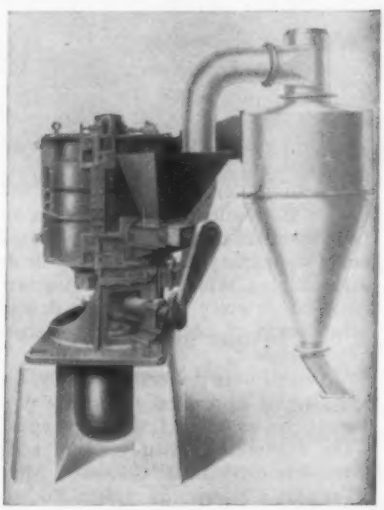

RAYMOND VERTICAL MILL

Quick accessibility is a main feature of design in this modern Raymond pulverizing unit. By loosening a couple of star nuts, the doors can be swung open to expose the complete interior with all working parts in a few seconds. This permits easy inspection and cleaning, or making changes from one grade to another with a minimum of downtime for set-ups.

The Vertical Mill does an efficient job of pulverizing non-abrasive products to extremely high fineness ranging from minus 325 mesh into the sub-sieve sizes. On some softer materials, the finished products may be reduced to 95% to 98% finer than 5 to 10 microns in this mill. It is equally effective in grinding tough or fibrous materials where close fineness control is required.

Exterior view of 35" Raymond Vertical Mill shown at left. Write for Bulletin No. 78 which describes the 18" and 35" Vertical Mills.

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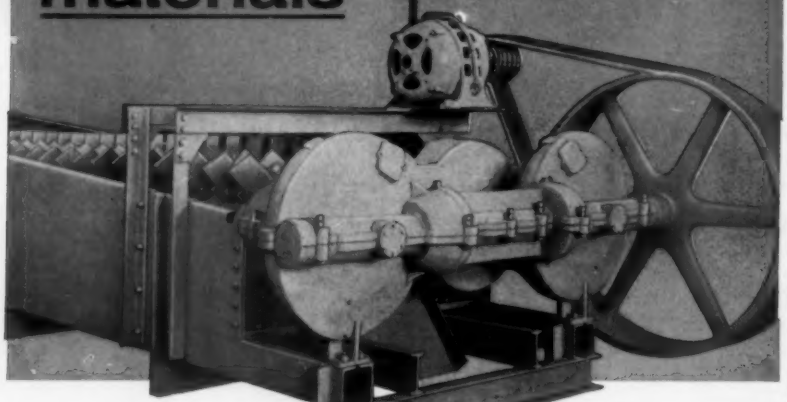

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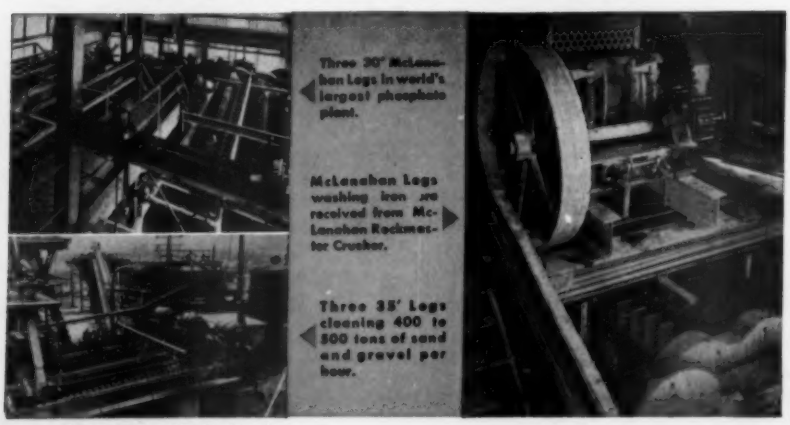
LOG WASHERS

McLANAHAN & STONE CORPORATION

252 Wall Street, Hollidaysburg, Pennsylvania


Three 30" McLanahan Logs in world's largest phosphate plant.
McLanahan Logs washing iron ore received from McLanahan Rockmaster Crusher.
Three 35' Logs cleaning 400 to 500 tons of sand and gravel per hour.

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ROCKY'S NOTES

(Continued from page 124)

May "Notes," a recent textbook on geology, which we have previously reviewed on this page, gives some additional data on the Gulf Stream and other ocean currents in the Atlantic Ocean. We quote: "Cold polar surface water sinks in the North Atlantic off the coast of Greenland and creeps southward as a depth current as far south as Lat. 60 deg. S. Beyond that position, cold antarctic winter water drives below it as a 'bottom current.' Another current, the 'intermediate current,' flows northward from Lat. 50 to 60 deg. S. to about Lat. 30 deg. N. at a depth of 1,000 meters. Other near-surface currents sink at about Lat. 30 deg. N. and 30 deg. S. and flow at a depth of about 600 meters toward the equator, where they well up and begin to return along the surface [the Gulf Stream is one of these]. Thus a complicated circulatory system prevails in the Atlantic, delicately balanced in dynamic equilibrium between heating, cooling, dilution by fresh water, and concentration by evaporation, and modified by the shape of the basin, configuration of the bottom, the Earth's rotation and perhaps other factors."

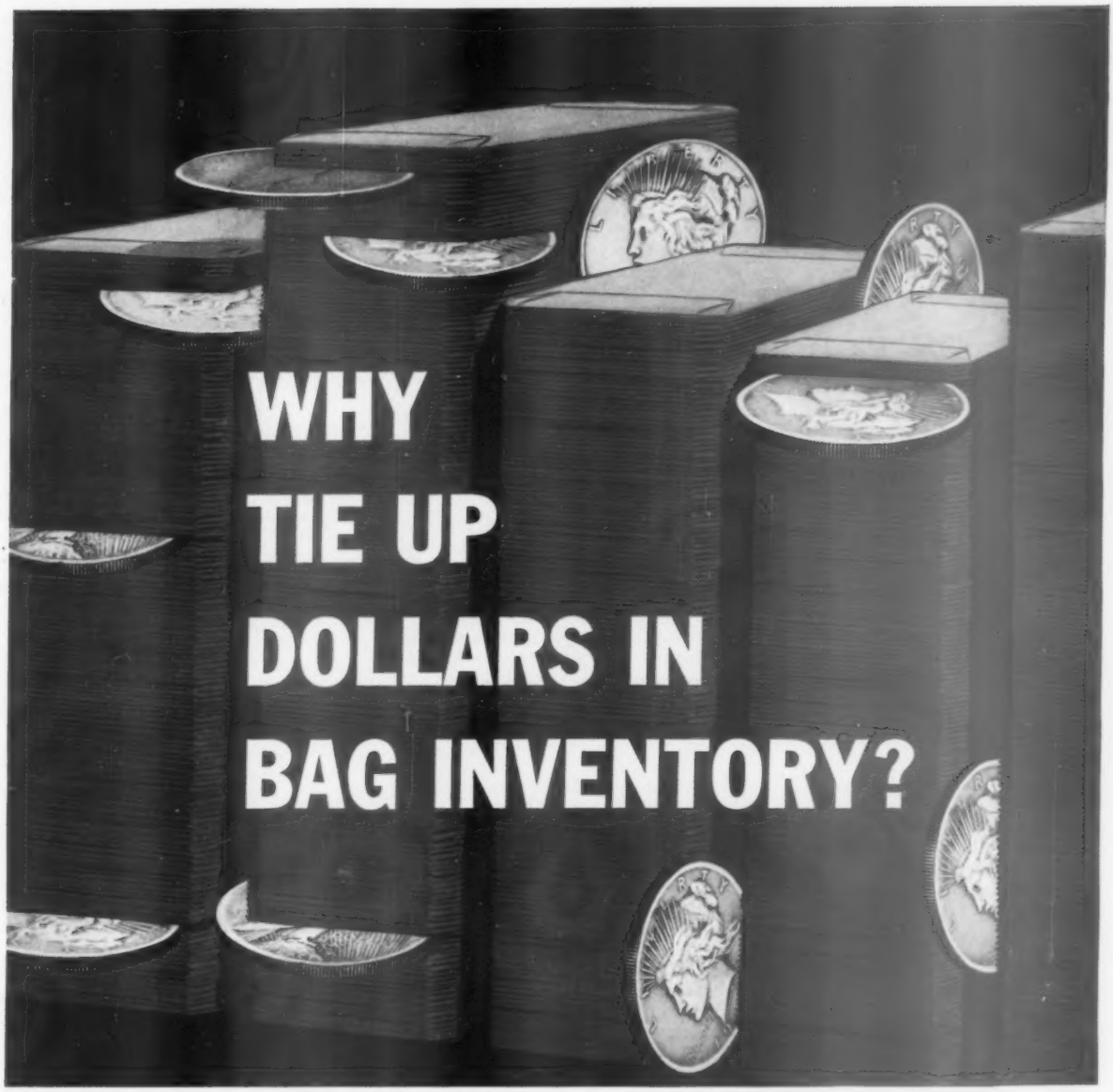
We thought our readers should know this before they start agitation to build the world's greatest riprap jetty and develop for it, the world's greatest quarrying enterprise!

END

Alpha salesmen are safety conscious

ALPHA PORTLAND CEMENT CO., Easton, Pa., has instituted a safe driving program among its sales force to promote safety consciousness among men who do extensive driving in their work. Each salesman who operates an Alpha-owned car receives a dashboard sticker denoting his years of accident-free driving. Winners also receive savings bonds every five years to denote that length of time without a chargeable accident.

Awards were presented recently, the first to be made under the new program, to six district sales managers. The winners and their years of accident-free driving are: Clinton K. MacTaggert, Chicago, 33 years; Rutherford E. Brown, Washington, D.C., 32 years; William H. Carr, Eastern district, 16 years; Horace E. Brown, Birmingham, 8 years; Richard P. Williams, Chicago, 7 years; Carl H. Schlutow, St. Louis, 7 years. All are district managers except Mr. Williams, who is Chicago assistant district manager.



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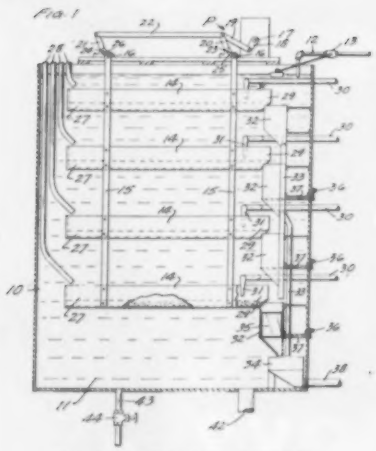
NEW U.S. PATENTS

OLIVER S. NORTH

Recently issued patents on nonmetallic minerals*

Aggregates



Drawing of Patent No. 2,824,644

2,824,644—Submerged gravity-type separator for washing and cleaning **gravel,** wherewith neither heavy nor light fraction is passed through a hydraulic pump. A sized feed of gravel and intermixed lightweight foreign materials, such as coal or slate, is submerged in water on trays, and the trays are oscillated by suitable mechanism. Material stratifies, and the lighter waste fraction is siphoned from tops of beds of gravel. The desired heavy gravel discharges over ends of trays into collecting hoppers. Apparatus is low in initial and operating costs, and high in capacity. Damaging abrasive action of gravel on mechanism is greatly reduced by accomplishing the separation under water. (to T. F. Garland.)

Figure 1 is a vertical sectional view showing portions of the separator in elevation view, partly cut away.

Apparatus consists primarily of water tank (10), rectangular trays (14), supporting arms (15), raw material feed pipes (28), siphon heads (31), waste material siphons (30), gravel receiving hoppers (32), gravel bins (34), and pitman (P) with necessary arms and levers (severally numbered). Water level is maintained constant by feeding enough water through inlet pipe (12) to make up for water siphoned off, lost to gravel receiving bins and removed with sediment through drain pipe (43).

In operation, crude sized material is fed through pipes (28) to the various trays. Tray bottoms have many small perforations which will pass sediment but not feed materials. Oscillation of trays causes material to stratify as it moves across trays to discharge end. Siphon heads pick up water and waste and discharge to a vessel placed lower than the separator. Gravel drops over tray ends (29) into receiving bins, and is removed from latter through egress tubes (38). Water from waste siphons, gravel egress tubes and sediment drainage pipe can be easily recovered and clarified for re-use.

Lime

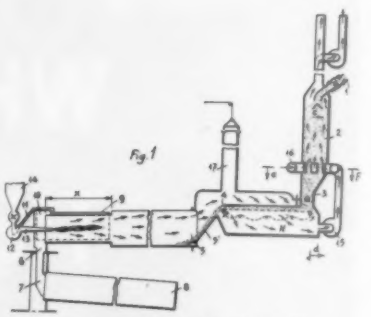
2,823,989—Lump **quicklime,** preferably lumps still showing natural rock structure, is used in this process for reducing volatility and reactivity of sodium and magnesium metals. (to A. J. Deyrup and J. R. Ferron. Assigned to E. I. du Pont de Nemours & Co.)

Cement

2,823,910 — Plant for producing **portland cement** clinker consists of primary preheating tower, secondary preheating grate apparatus, rotary kiln and rotary cooler. Arrangement permits gradual thermic preparation of mixtures of raw materials and eliminates the "bursting" of particles which often occurs when cold material is subjected abruptly to relatively hot kiln gases. Full use is made of waste gases from the kiln. (to P. Ravasio. Assigned to Ansaldo S. A., Societa per Azioni.)

Figure 1 is a diagrammatic view of the system covered by this invention. Raw material is shown in stippling; flow of gases is denoted by arrows.

Raw material mixture is fed through pipe (1) to vertical heating tower (2), wherein it is subjected to warm gases



Drawing of Patent No. 2,823,910

admitted to tower through ducts (16). Material moves past ducts to throat (3), from which it is controllably fed to a traveling grate (number not shown), whereon it is subjected to heat of hot gases directly exiting the kiln. The fully preheated material drops over end (4) of grate and slides by gravity down ramp (5') to rotary kiln at (5). Clinker exits kiln and is cooled in cooler (8). Draft for rotary kiln is supplied by chimney (17). Circulation fan (15) draws gases from the grate chamber.

2,824,384—The principle of parallel heat flow exchange is used in this heat exchange tower in which dry mixtures of **portland cement** raw materials may be efficiently preheated. Gases are handled at relatively low pressure differentials and with low consumption of power compared with that required in heat exchangers previously used. (to G. Niemitz. Assigned to Kennedy-Van Saun Mfg. & Eng. Corp.)

2,824,701—New apparatus for and method of wet grinding slurries of **portland cement** raw materials in multi-compartment mills. Feed in first compartment contains only a portion of the total amount of water required. Remainder of water necessary to obtain desired slurry is introduced in the last compartment or compartments. Method enables close control to be maintained of the amount of water in slurry issuing from the mill. (to B. Vester and T. B. Olsen. Assigned to F. L. Smidth & Co.)

END

*Copies of United States patents are available at a cost of 25 cents each from The Commissioner of Patents, Washington 25, D.C. For convenience, coupons, each good for one copy of any patent, may be purchased from that official at the rate of $5.00 per 20-coupon pad or $25.00 per 100-coupon pad.

B.F.Goodrich

B.F.Goodrich Rock Service tires speed highway construction for contractor

CKG ASSOCIATES put 115 pieces of equipment on the job to speed completion of the Northern Illinois Toll Road near Elgin. Trucks, tractors, earthmovers, cement-mixing machines —all work 12 hours a day, 6 and 7 days a week. Helping this equipment stay on schedule are 8 different types of B.F.Goodrich tires, headed by the new Rock Service Tubeless. Fast, expert on-the-job tire service given by the local B.F.Goodrich dealer is one reason for this choice.

Another is outstanding tire performance. The new B.F.Goodrich Rock Service tire is built to its inflated shape. The whole tire flexes evenly—no *localized* stresses that often cause unnecessary tire failure. The B.F.Goodrich FLEX-RITE NYLON cord body withstands double the impact of ordinary cord materials, resists heat blowouts and flex breaks. Result: more retreadable Rock Service tires.

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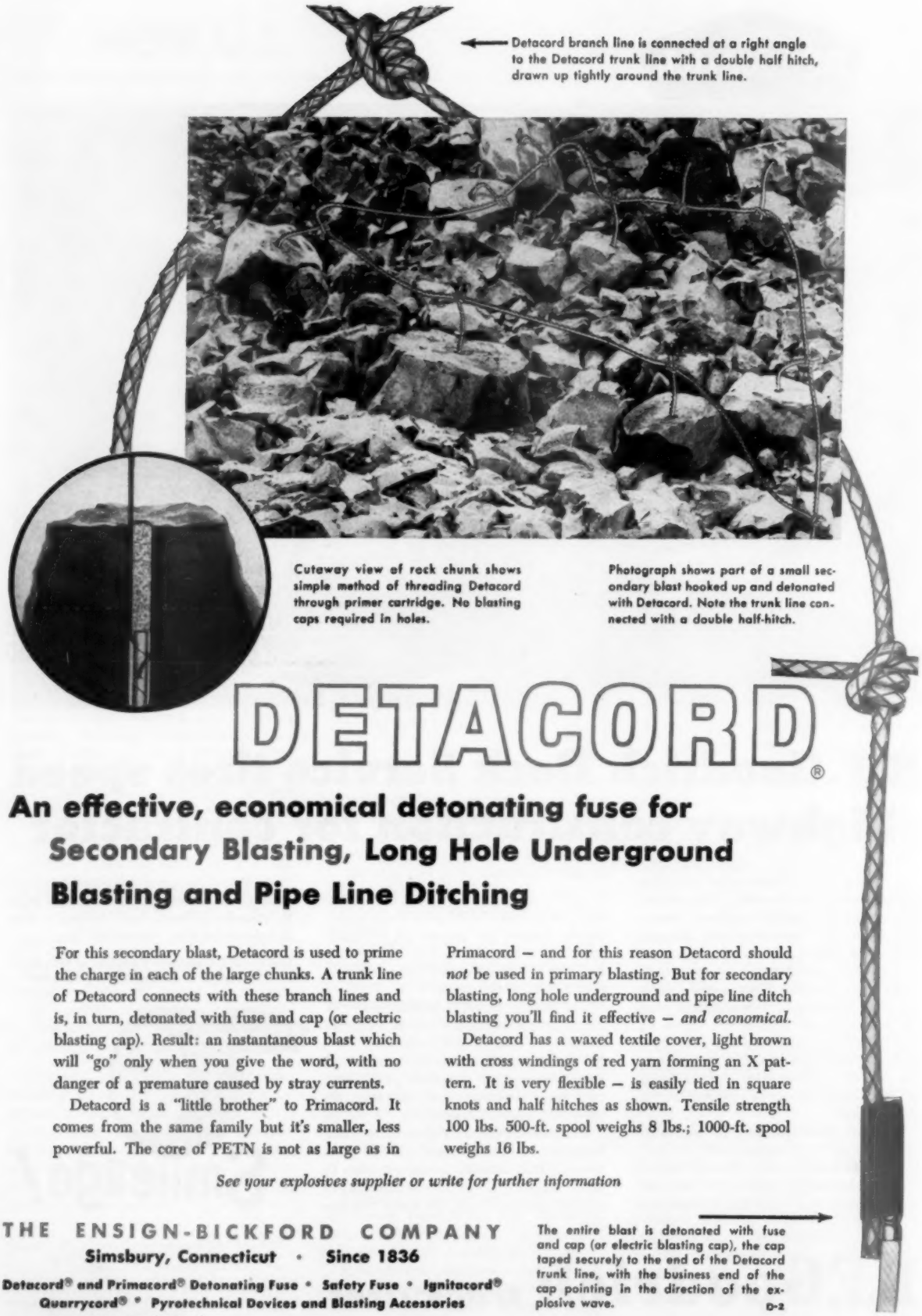

Detacord branch line is connected at a right angle to the Detacord trunk line with a double half hitch, drawn up tightly around the trunk line.

Cutaway view of rock chunk shows simple method of threading Detacord through primer cartridge. No blasting caps required in holes.

Photograph shows part of a small secondary blast hooked up and detonated with Detacord. Note the trunk line connected with a double half-hitch.

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An effective, economical detonating fuse for Secondary Blasting, Long Hole Underground Blasting and Pipe Line Ditching

For this secondary blast, Detacord is used to prime the charge in each of the large chunks. A trunk line of Detacord connects with these branch lines and is, in turn, detonated with fuse and cap (or electric blasting cap). Result: an instantaneous blast which will "go" only when you give the word, with no danger of a premature caused by stray currents.

Detacord is a "little brother" to Primacord. It comes from the same family but it's smaller, less powerful. The core of PETN is not as large as in Primacord – and for this reason Detacord should *not* be used in primary blasting. But for secondary blasting, long hole underground and pipe line ditch blasting you'll find it effective – *and economical.*

Detacord has a waxed textile cover, light brown with cross windings of red yarn forming an X pattern. It is very flexible – is easily tied in square knots and half hitches as shown. Tensile strength 100 lbs. 500-ft. spool weighs 8 lbs.; 1000-ft. spool weighs 16 lbs.

See your explosives supplier or write for further information

THE ENSIGN-BICKFORD COMPANY

Simsbury, Connecticut • Since 1836

Detacord® and Primacord® Detonating Fuse • Safety Fuse • Ignitacord® Quarrycord® • Pyrotechnical Devices and Blasting Accessories

Enter 1237 on Reader Card

The entire blast is detonated with fuse and cap (or electric blasting cap), the cap taped securely to the end of the Detacord trunk line, with the business end of the cap pointing in the direction of the explosive wave.

D-2

MONEY MAKING IDEAS FOR YOU---FREE

USE THESE CARDS FOR MORE INFORMATION ON:

1. **Advertised Products**
2. **New Machinery**
3. **New Literature**

How to use:

Each advertisement in this issue is provided with a key number, so is each new machinery and new literature item. For more information on any of these items simply fill in the key numbers in the appropriate space on the adjoining card and send it to us. We'll do the rest.

BUSINESS REPLY CARD
No Postage Stamp Necessary If Mailed in the United States

FIRST CLASS
PERMIT NO. 1417
CHICAGO, ILL.

– POSTAGE WILL BE PAID BY –

ROCK PRODUCTS
79 WEST MONROE ST.
CHICAGO 3, ILL.

READER-SERVICE CARD RP-6-58

ROCK PRODUCTS
79 W. Monroe St.

JUNE, 1958
Chicago 3, Illinois

Cannot be serviced after August 1, 1958 postmark.

Please print or type

Name_____ Position_____

Company (In Full)_____

Company Address_____ City_____ Zone____ State_____

MAIN PRODUCT OF PLANT_____ CAPACITY_____

[THIS INFORMATION WILL HELP US GIVE YOU MORE COMPLETE SERVICE.]

Send information on items identified by key numbers beside or below items of interest to you. List your choice in numerical order. Limit 10 per card.

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(6) ..... (7) ..... (8) ..... (9) ..... (10) .....

IF NO KEY NUMBER, USE COMPANY NAME

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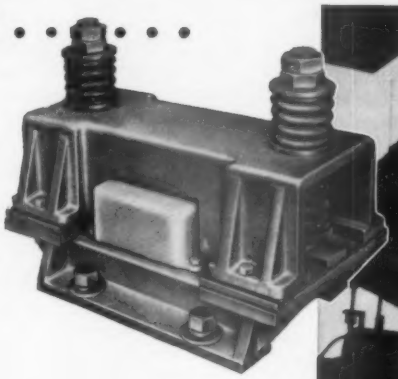
Eliminate sticking, arching, plugging of bins, hoppers and chutes--Keep them flowing freely with . . . . . .



on sand hopper over feeder

on rock storage hopper

SYNTRON

Pulsating Magnet

BIN VIBRATORS

— designed to keep materials flowing freely through bins, hoppers and chutes — efficiently, effectively and economically.

— help processing equipment operate at full capacity by eliminating slow downs or shut downs due to arching and plugging of materials.

— SYNTRON Bin Vibrators set up waves of powerful, high speed, instantly controllable vibrations, 3600 per minute, that move the most stubborn materials.

SYNTRON engineered Bin Vibrators offer these advantages for low cost operation — versatility, dependability, easy installation and inexpensive maintenance.

SYNTRON Bin Vibrators are built in a wide range of sizes to fill every need from a cubic foot hopper to large bins and bunkers.

Available in electromagnetic, pneumatic or hydraulic powered units.

Solve that troublesome bin problem with SYNTRON Bin Vibrators. Send details to our application engineers or check your telephone directory for the nearest SYNTRON Representative.

RP-258

Builders of Quality Equipment for more than one third of a century.

Other SYNTRON Equipment of Proven Dependable Quality

designed to increase production, cut production costs, improve products

Vibrators (bins, hoppers, chutes)
Vibratory Feeders
Vibratory Screens
Shaker Conveyors
Vibratory Elevator Feeders
Weigh Feeders
Packers and Jolters
Hopper Feeders
Lapping Machines
Rectifiers (Silicon and Selenium)
a-c to d-c Selenium Rectifier Units
Electric Heating Panels
Electric Heating Elements
Sinuated Wires
Shaft Seals
Electric Hammers
Concrete Vibrators
Paper Joggers

Our representatives will be glad to work with you in selecting the proper equipment for your operation.

Call your nearest Syntron representative

Write for a SYNTRON Illustrated Catalog — FREE

SYNTRON COMPANY
450 Lexington Ave. Homer City, Penna.

Enter 1329 on Reader Card

SAVE
with a MARIETTA STORAGE SYSTEM Engineered to your own needs

MARIETTA STORAGE SILOS can be erected in any number of units for bulk storage.

● You'll realize a big savings in time, money and materials when you install a modern Marietta Storage System.

Sturdy, interlocking concrete stave silos save materials by keeping them dry, free from waste, protected against weather or fire. And there's practically no maintenance to Marietta storage silos.

Conveyors, feeders, discharge systems or other specially designed equipment save material handling time and speed-up your operation. Whatever bulk material you use, you can depend on Marietta's know-how to design and erect the most efficient system for your need. The complete job will be handled under one cost-saving contract or in cooperation with your engineering staff, consultants or contractor.

Write today for an analysis of your storage problem and ask for a copy of the Marietta Industrial Storage Systems Booklet.

42 Years Know-How in Precast Concrete Construction

THE Marietta
CONCRETE CORPORATION
MARIETTA, OHIO
BRANCH OFFICES:
501 5th Ave., New York 17, N. Y., Jamestown, N. Y., Baltimore 21, Md., Charlotte 6, N. C., Nashville, Tenn.

Enter 1247 on Reader Card

NEW LITERATURE

Alumina products

THE IRONTON FIRE BRICK CO. has released Bulletin 108 listing uses and application of its high alumina products. Also described are the AL-70, 70 percent alumina brick and HI-AL high alumina ramming mix for severe applications.

Enter 600 on Reader Card

Belt conveyors

THE JEFFREY MFG. CO. has published Catalog 852 containing information on designs of conveyor details and engineering data necessary to design a belt conveyor for any application. Also listed is equipment such as belting, trippers, terminal pulley, takeups, backstops and belt cleaners. In addition, there is listed a complete line of anti-friction idlers in cast iron or steel.

Enter 601 on Reader Card

Bucket elevators

CHAIN BELT CO. has prepared Bulletin 5784 describing its Rex standard industrial bucket elevator line. Tables are provided for elevator and drive selection. Also discussed are construction features and rated capacities of sprockets, takeups, bearings, chain, buckets and pulleys.

Enter 602 on Reader Card

Centrifugal compressors

CLARK BROS. CO. has made available Catalog 150 describing construction and performance characteristics of its line of centrifugal compressors. Included are: sections on horizontally and vertically split compressors; an introduction to features and applications; and a section dealing with parts, engineering data and specifications.

Enter 603 on Reader Card

Conveyors

GOODMAN MFG. CO. has released Catalog IMD-128 concerning its Ropebelt conveyor for moving bulk materials short or long distances. Data is provided on wire rope, wire rope anchors, linked carrying idlers and supporting strand.

Enter 604 on Reader Card

Couplers

JORDAN INDUSTRIAL SALES DIVISION of OPW Corp. has issued Catalog F-10-R describing features, applications, materials, styles and sizes of its Kamlok quick couplers. Dimensional drawings, pressure-temperature ratings and a chemical service recommendation chart are provided.

Enter 605 on Reader Card

Crawler tractor

ALLIS-CHALMERS MFG. CO. has released Catalog MS-1289 illustrating and describing its Model HD-16 diesel crawler tractor. Specifications are included in addition to cutaway views of both gear transmission and torque converter models.

Enter 606 on Reader Card

Drilling equipment

STARDRILL-KEYSTONE CO. has prepared a booklet, "Drilling Holes," containing information on its six basic drilling machines and drilling tools. Specifications, descriptions of parts and capacities, including depth, diameter and drill pipe ratings, are given.

Enter 608 on Reader Card

Drives and couplings

DODGE MFG. CORP. has brought out Bulletin A-665 describing its Models 5D and 5C smaller drive and coupling. Included are photos, drawings and tables listing various motor and shaft sizes with which the units may be used. Also given are starting horsepower ratings for different speeds.

Enter 607 on Reader Card

Gauges

KUNKLE VALVE CO. has prepared 48-page Catalog G-58 introducing its line of pressure gauges and accessories with ranges from 15 to 20,000 psi. Engineering data and selection tables for applications in processing plant instrumentation are presented.

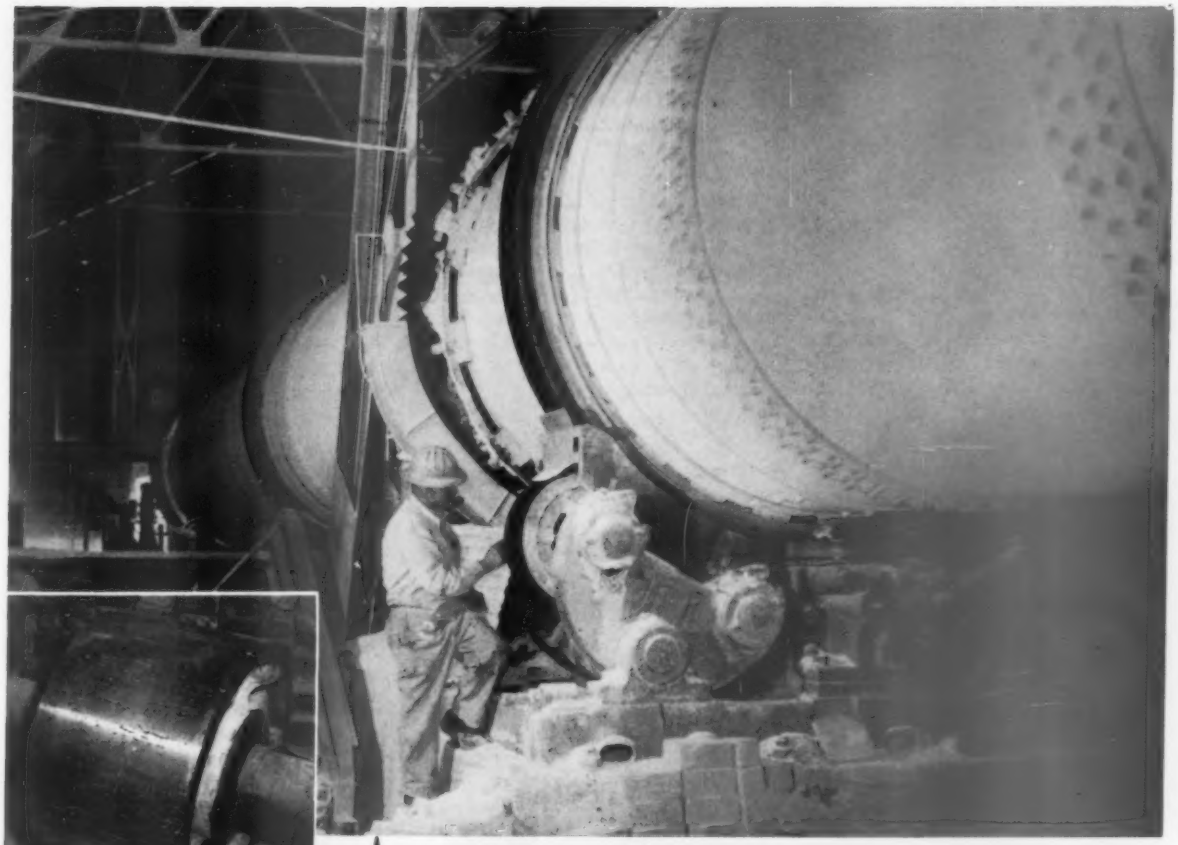
Enter 609 on Reader Card

Impact crusher

KENNEDY-VAN SAUN MFG. & ENG. CORP. is distributing Bulletin D-1006 covering its Cuber Junior unit designed for basic primary and secondary crushing. Specifications include capacities to 250 tph. in closed circuit, with connected horsepowers from 75 to 150.

Enter 610 on Reader Card

(Continued on page 138)



View showing relative size and position of furnace, rolls and rings.

Roll hardfaced with Victoralloy No. 1. After ten months of constant operation, no wear, flaking, or cracking of edges.

A case of wear and tear... and how Victoralloy solved it

PROBLEM:

The 300-ton furnace of Diamond Springs Lime Company, Diamond Springs, Calif., rolls on 16 centered 30/40 carbon steel rolls. The furnace's heavy weight and terrific heat caused the rolls to flake and crack at the edges. This in turn caused the furnace roller-rings to begin disintegrating. How to stop the wear and tear before an expensive shutdown and complete replacement of rolls and roller-rings became necessary?

SOLUTION:

Herbert Green, superintendent, and John Desson, general foreman, hardfaced the rolls with Victoralloy No. 1 Coated-Electric. Checking after ten months of operation, they found the case solved: no flaking of rolls, no cracking at the edges, and no disintegration of furnace roller-rings.

You, too, can solve cases of wear and tear on operating parts with Victor hardfacing alloys. Complete line of 26 different alloy rods assure you a right rod for every hardfacing need. Full range of sizes for both acetylene and electric AC and DC applications, either hand or automatic. Order from your Victor dealer TODAY.

• FREE •
Victor Hardfacing Manual shows you right rod to use and how to apply it. Write us NOW *for your copy.*

Profitable dealerships open; inquire now!

VICTOR for hardfacing

H-40 VICTOR EQUIPMENT COMPANY

ALLOY ROD AND METAL DIVISION

13808 E. Imperial Highway, Norwalk, Calif. • Wakita, Oklahoma

Enter 1262 on Reader Card

NEW LITERATURE

(Continued from page 136)

Induction motors

THE LOUIS ALLIS CO. has published 16-page Bulletin 1950 describing its line of large induction motors in ratings from 150 to 1,250 hp.

Enter 611 on Reader Card

Industrial tires

MITCHELL INDUSTRIAL TIRE CO., INC. has issued a booklet covering its line of laminated industrial tires for split wheels and flat base rims or wheels. Also provided are mounting instructions, specifications and ordering data for all industrial machines.

Enter 612 on Reader Card

Kiln brick

KAISER CHEMICALS DIV., Kaiser Aluminum & Chemical Sales, Inc. has made available "Brick for Hot Kiln Zones" containing information on installing procedures, laying Unitab kiln liners, installing bare brick, maintenance requirements and suggestions for starting kiln.

Enter 613 on Reader Card

Ladders

BALLYMORE CO. is distributing Catalog 158 illustrating typical uses of its 35 step ladder models for working heights up to 15 ft. Also shown and described are other ladders, hydraulic lifts and fixed or adjustable-level work platforms.

Enter 614 on Reader Card

Manifolds

AIR REDUCTION SALES CO. has made available Form ADC 636D describing its line of manifolds for gases, featuring Model 8290-5100 stationary duplex oxygen manifold. Information regarding cylinder capacity, dimensions and arrangements is provided.

Enter 615 on Reader Card

Materials handling catalog

CHAIN BELT CO. has published Catalog 610 describing its line of products for power transmission, conveying and elevating service. Included are cast and cut-tooth sprockets, bearings and take-ups, elevator buckets and accessory products such as bin gates, spray nozzles and roller chain casings.

Enter 616 on Reader Card

Measuring instruments

DYNAMETRICS CORP. is distributing Catalog 109 outlining its force and pressure measuring instruments. The equipment described includes weighing and batching systems, truck and track scales, pressure monitoring and control systems and process controls. Services are available for manufacturing special units to meet individual specifications.

Enter 617 on Reader Card

Mobile radios

GENERAL ELECTRIC CO. has made available Bulletin ECR 547C describing its transistor-powered mobile radios up to 100 watts, with thermostatically-protected transistors. Units for mounting at the front of a vehicle or in the trunk are covered.

Enter 618 on Reader Card

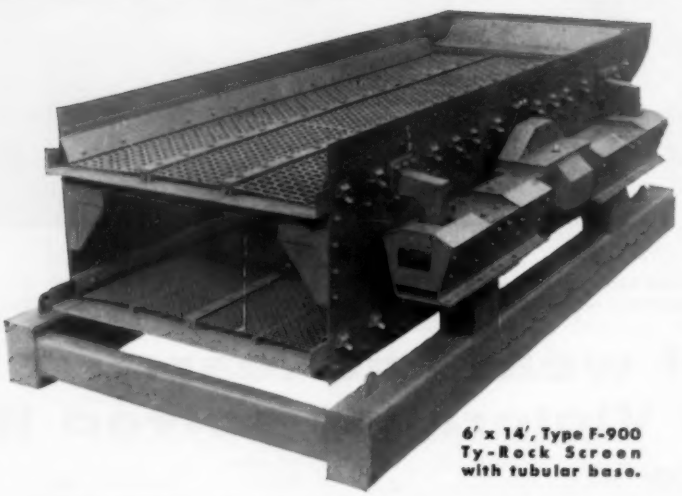
Motors

U. S. ELECTRICAL MOTORS INC. is distributing Bulletin 1878 containing a presentation of its complete line of totally enclosed motors, variable speed motors, internally geared motors, hollow and solid shaft motors and other types of transmission products.

Enter 619 on Reader Card

(Continued on page 140)

TY-ROCK SCREENS



6' x 14', Type F-900 Ty-Rock Screen with tubular base.

For TOP Performance

The balanced circle-throw action of the Ty-Rock plus the full-floating action on large shear type resilient rubbers enables this screen to separate material with unequalled speed and effectiveness.

The Ty-Rock wastes no power in useless, harmful racking of buildings or supporting members. It delivers all of the intense power to the job of stratifying and separating the sizes.

Telephone HE 1-5400 • *Teletype* CV 586

THE W. S. TYLER COMPANY
CLEVELAND 14, OHIO
Manufacturers of Woven Wire Screens and Screening Machinery

Enter 1248 on Reader Card

PRODUCER

The Wemco Sand Preparation Machine:

First Choice of Operators who know there is a Difference in Screw Classifiers

Owners of Wemco Sand Preparation Machines, by experience, have sound reasons for choosing this machine for the *extra* tough jobs of producing specification sand:

- Matchless performance . . . geared to the job of saving the desired sand sizes.
- Trouble-free operation . . . negligible maintenance over many years.
- Lowest operating costs . . . lowest power requirements.
- Lifting device for spiral . . . freedom from shutdown or delays due to "unusual" conditions.

Get all the facts on the Wemco Sand Preparation Machine — and its profit potential for you.

Depend on the Wemco Sand Preparation Machine and the skills behind it.

WEMCO®

Western Machinery Company
650 Fifth St. • San Francisco, Calif.
and throughout the world

Enter 1277 on Reader Card

NEW LITERATURE

(Continued from page 138)

Pipe and fittings

NAYLOR PIPE CO. has issued Bulletin 507 showing typical applications of its lightweight spiral-lockseamed pipe and fittings.

Enter 629 on Reader Card

Portable conveyors

UNIVERSAL ENGINEERING CORP. has made available Bulletin 406-581 describing its Power-Lift portable conveyor, available in 15 sizes from 18 x 44 in. to 30 x 60 in. Included are specifications, operating instructions and a list of optional equipment.

Enter 630 on Reader Card

Portland cement

LEHIGH PORTLAND CEMENT CO. has prepared "The ABC's of Portland Cement," based on addresses given at the NSGA-NRMCA ninth annual short course on aggregates and concrete; ACPA's sixth short course, and the Symposium on Good Concrete, Washington University.

Enter 631 on Reader Card

Processing equipment

THE JEFFREY MFG. CO. has published Catalog 860-A covering its line of material handling and processing equipment. Type, size and capacity data are provided along with descriptions and illustrations.

Enter 632 on Reader Card

Protective clothing

JOMAC INC. has described and illustrated its line of poly-vinyl chloride-impregnated, all-weather protective clothing for personnel engaged in outside occupations. The three basic garments described include a full-length coat, overalls and a short coat usually worn with the overalls.

Enter 633 on Reader Card

Pulleys

HEWITT-ROBINS, INC. has issued 16-page Bulletin J-15 covering its line of cast iron flywheels and conveyor pulleys. Construction data, accessories listing and ordering instructions also are provided.

Enter 634 on Reader Card

Pulverizers

STEDMAN FOUNDRY AND MACHINE CO., INC. has published Catalog 517 describing its internal impact type crushers and pulverizers. Unit illustrations and cross-sectional diagrams are presented as well as dimension charts and capacity tables.

Enter 635 on Reader Card

Remote control system

RICHARDSON SCALE CO. is distributing Bulletin 0557 describing how its Select-O-Weigh system provides complete automation in operating feeders, scales, conveyors, buckets or any other equipment used in proportioning, blending or mixing materials. Illustrations of the four basic control panels are provided, in addition to a discussion of the punched card reader control system.

Enter 636 on Reader Card

Separators

HARDINGE CO., INC. has released Bulletin 39-C covering its classifiers, hydro-separators, washers and heavy media separators. Application data and combined grinding and wet classifying flow sheets are given. Also, a section is devoted to the "Overdrain" classifier, a belt-type classifying device with a new sand cleaning feature.

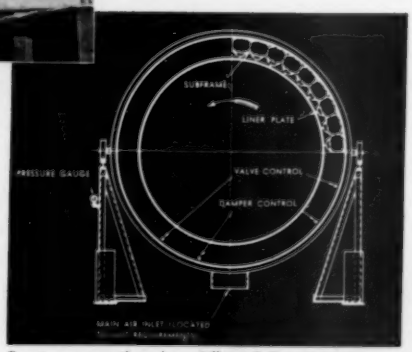
Enter 637 on Reader Card

(Continued on page 142)

Type S Recuperator applied to Unit-fired Rotary Cement Kiln

greater output and economy with a Manitowoc recuperator

- FUEL SAVINGS
- BETTER QUALITY
- INCREASED OUTPUT
- IMPROVED GRINDABILITY
- LOW COST



Front, cross section view of Type S Recuperator

Cement mills throughout the world are finding it highly advantageous and profitable to install a Manitowoc Recuperator. Attached to your existing kiln, it provides greater economy, an improved quality of cement, greater efficiency and increased output.

The type S design shown above is particularly suited to kilns requiring high volumetric air capacity and maximum output.

In all cases this Recuperator may be readily attached to an existing rotary kiln, requiring only a minimum of labor in erection, involving no foundation or brickwork and occupying a minimum of floor space.

It will pay you to get full information on all types of Manitowoc Recuperators. Find out how much they can do for you—and why it will pay you to install one on your kiln.

MANITOWOC SHIPBUILDING INC.

MANITOWOC, WISCONSIN

Enter 1281 on Reader Card

Enter 1282 on Reader Card

"We decided to use only the very best equipment...where sizing is concerned this is the SYMONS SCREEN"

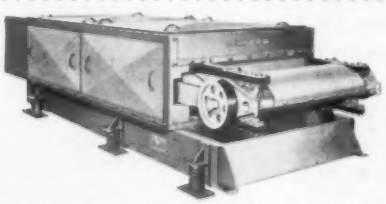
says Mr. A. W. BOLLARD, V.P.
Bollard Asphalt Plant Division
of Colonial Iron Works Company

The Bollard Asphalt Plant Division of the Colonial Iron Works Company has joined the steadily growing list of prominent asphalt plant builders who standardize on Symons Horizontal Vibrating Screens for high capacity, accurate sizing of bituminous materials.

Bollard, with an intimate knowledge of the asphalt plant industry gained through 38 years of experience as draftsman, designer, chief engineer and vice president of one of the pioneer builders has this to say, "*I have always been impressed by the performance, low maintenance and operating costs of Symons Horizontal Vibrating Screens. When I started to manufacture plants under my own name, I gave a great deal of thought and consideration to the selection of screens. I decided then to use only that equipment, which in my judgment, is the very best in the field. As far as screening equipment was concerned, this is the SYMONS Screen . . .*"

Here, then, is an outstanding vote of confidence for Symons Screens, from an experienced asphalt plant manufacturer. On *your* next plant, be sure to specify *SYMONS®*.

SYMONS . . . a registered Nordberg Trademark known throughout the world.



SYMONS "TYPE F" HORIZONTAL VIBRATING SCREENS . . . *available in various deck arrangements for multiple separation, including intermediate relief decks. These heavy duty screens provide higher capacity, more accurate sizing of multi-aggregate bituminous mixes. With drive unit, bearings and motor located outside the screen housing, away from dust and heat, maintenance is extremely low. By being mounted horizontally the Symons Screen requires less elevator height and lower headroom.*

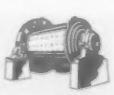
NORDBERG MFG. CO., Milwaukee 1, Wisconsin

NORDBERG

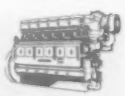
© 1958, N.M.Co.

S458

SYMONS CONE CRUSHERS



NORDBERG GRINDING MILLS



NORDBERG ENGINES

ATLANTA • CLEVELAND • DALLAS • DULUTH • HOUSTON • KANSAS CITY • MINNEAPOLIS • NEW ORLEANS • NEW YORK • ST. LOUIS
SAN FRANCISCO • TAMPA • WASHINGTON • TORONTO • VANCOUVER • GENEVA • JOHANNESBURG • LONDON • MEXICO, D. F.

NEW LITERATURE

(Continued from page 140)

Tire handbook

B. F. GOODRICH TIRE CO. has brought out a 52-page handbook explaining how equipment operators and owners can get maximum service out of off-the-road tires. Also provided are data on load and inflation, weights and measures, tire specifications for 1957 motor graders, self-propelled and tractor-drawn scrapers plus valve and rim information.

Enter 620 on Reader Card

Screw conveyors

JEFFREY MFG. CO. has brought out Catalog 851 covering its line of screw conveyors and fittings. Six principal types discussed are: Sectional flight; helicoid; mixer; cut flight; ribbon; and cast iron. Selection, capacity and dimension tables are provided.

Enter 621 on Reader Card

Shovel

THE YALE & TOWNE MFG. CO. has released Form DW-18 describing its Model 404 Trojan tractor shovel, rated at 4 cu. yd.

Enter 622 on Reader Card

Steel chains

TAYLOR-WHARTON CO. has prepared Bulletin 1-58-5M covering its line of manganese steel chain. Illustrations are given for detachable, combination, pintle, drag and heavy service chains for use on conveyors, elevators and drives. Specification charts are provided for available attachment and sprocket patterns.

Enter 623 on Reader Card

Truck size and weight laws

FOUR WHEEL DRIVE AUTO CO. has compiled the laws of all 48 states and the District of Columbia regulating size and weight of trucks and trailers into a pocket-size booklet. It has been prepared with the assistance of state officials, who have checked and approved the regulations and interpretations relative to their individual states.

Enter 624 on Reader Card

Twin-bearing screens

SCREEN EQUIPMENT CO., INC. has brought out Booklet TB-21 introducing its line of Seco twin-bearing screens. Also described are accessories, including heated wire cloth for screening fine, damp or sticky materials, ball tray attachment for speeding material through openings and dust housings for individual installations.

Enter 625 on Reader Card

Vibrating feeders

SIMPLICITY ENGINEERING CO. has made available 30-page Catalog 571 describing its light, medium and heavy-duty feeders and its heavy-duty grizzly and oscillating feeders. Clearance dimensions and screen capacities are given, as well as photos of crushed stone and mining installations.

Enter 626 on Reader Card

Wagon drills

INGERSOLL-RAND has brought out Form 4191 describing construction features of its Models FM-4 wagon drill, FM-4 rotary drill and lightweight JHM "Wagonjack" mounting. Also presented are on-the-job photos.

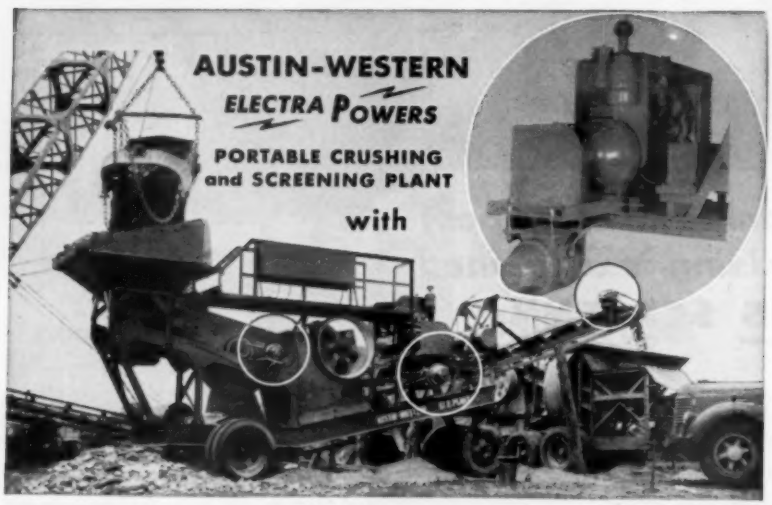
Enter 627 on Reader Card

Woven wire screens

AUDUBON WIRE CLOTH CORP. has released a catalog covering its line of Vibraloy woven wire screens. Sizes and weights are discussed as well as edge types, openings, steel draw plates and skirt boards.

Enter 628 on Reader Card

END



WIN POWER GENERATORS

Baldwin-Lima-Hamilton Corp.,—Construction Equipment Division—Lima, Ohio, manufacturers of AUSTIN-WESTERN crushing and screening equipment shown here, use WINPOWER generators for electric power. They know that by using WINPOWER powered electric motors and speed reducer drives on conveyors, feeders and screens they can eliminate long drive belts and drive shafts, expensive to buy and difficult to replace in case of failure in the field. *Whatever* your need there is a WINPOWER Generator for you. Generators as well as gasoline or diesel powered electric plants in capacities from 400 watts to 100 KW. You can save time and money with WINPOWER. See your WINPOWER Distributor or phone, write or wire at once for complete illustrated folder and specifications.

WINPOWER MFG. CO.
NEWTON, IOWA • U.S.A.

Enter 1249 on Reader Card

Enter 1250 on Reader Card

LIMA... built to stay on the job- keep output up, costs down

Every day Limas throughout the world are proving their worth in every type of excavating or crane work. Carefully engineered for modern, high-speed operation, these rugged, powerful machines handle the toughest stripping, digging, loading and lifting jobs with effortless speed. Their built-in stamina assures high output with lowest downtime. Easily maneuverable they move and work in the tightest spots, getting jobs done well ahead of schedule. Fingertip precision air controls pave the way for smooth, easy operations. For assignments calling for electrically powered machines, all Limas are available with optional electrical power package. Combining a single AC electric motor with a single stage torque converter, this drive matches, *electrically*, diesel-torque converter performance. You get maximum power performance under all operating conditions . . . and the motor won't stall or burn out. Lima quality design and construction extras make for profitable, efficient operations with minimum downtime. There's a Lima type and size for every job—shovels to 6 cu. yds., cranes to 110 tons and draglines variable. Smaller capacities are available on rubber. For full details, contact your nearby Lima distributor, or write to Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, Ohio.

Limas are available in three types of mountings — crawler, wagon or truck— for all types of service.

Lima Austin-Western crushing, screening and washing plants for portable or stationary operation.

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD

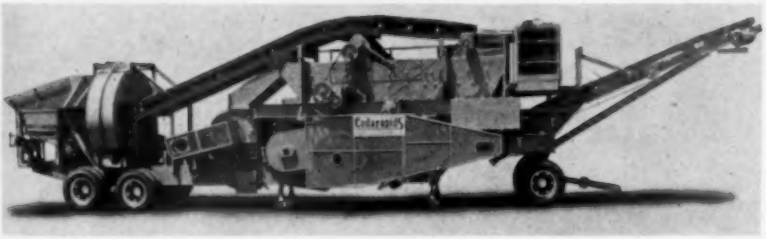
LIMA SHOVELS • CRANES DRAGLINES • PULLSHOVELS

BALDWIN BLH LIMA-HAMILTON

BALDWIN-LIMA-HAMILTON
Construction Equipment Division — LIMA WORKS

OTHER DIVISIONS: Austin-Western • Eddystone • Electronics & Instrumentation
Hamilton • Loewy-Hydropress • Madsen • Pelton • Standard Steel Works

NEW MACHINERY



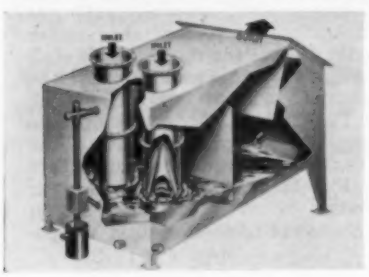
Tandem plant uses roll crusher, hammermill

A NEW TYPE OF PORTABLE CRUSHING and screening plant, called the "Hammeroll" plant, uses a tandem arrangement of a roll crusher and a hammermill for high capacity secondary reduction. It is primarily a rock plant, designed for secondary crushing operations in quarries where abrasive material is not a problem. The capacity of the plant depends upon conditions encountered. Extensive field tests have proved the unit will produce from 450 to 500 tph.

With the closed circuit design, material fed to the 36-in. reciprocating feeder is conveyed to the 48-in. x 14-ft. triple deck horizontal vibrating screen which takes off specification-size material. Large oversize is directed to the hammermill, smaller oversize goes to the roll crusher, and the crushed material is then recirculated to the screen for final sizing. *Iowa Mfg. Co., Cedar Rapids, Iowa.*

Enter 200 on Reader Card

Wet scrubber available for dust collection

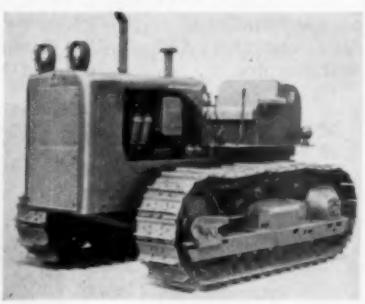


A NEW PRODUCT in the field of wet scrubbers for dust collection—the Turbulaire-Doyle scrubber—is now available. The new scrubber impinges dust-laden gas at high velocity into a pool of scrubbing liquid. The high-velocity impingement causes the gas and dust particles to penetrate deeply into the liquid bath, thus accentuating the wetting action and producing unusually high dust-collection efficiencies, even on particles so small that they are in the fume range.

Considering the high efficiencies obtained (97-99 percent), the pressure drop of 5-10 in. of water is moderate, and the low liquid ratio of 1-5 gpm. per 1,000 cfm. indicates that the scrubber can be used advantageously even in areas having a low supply of water or other scrubbing liquid. *Western Precipitation Corp., 1000 W. Ninth St., Los Angeles 54, Calif.*

Enter 201 on Reader Card

Diesel crawler tractor



A NEW 134-HP. DIESEL crawler tractor, the TD-20, offers a major advance in crawler tractor design in its power class with a six-speed full reverse transmission. With a single lever an operator can shift the transmission through six speed ranges. A separate lever operates the forward-reverse "shuttle bar" control which provides six speed ranges forward and six in reverse reducing dozing cycle time.

The TD-20 has speeds ranging from 1.5 to 7 mph. in forward range and from 1.8 to 8.4 mph. in reverse. Drawbar hp. on this model is rated at 111 with a maximum drawbar pull of 27,500 lb. in first gear at 1.5 mph. The 74-in. gauge tractor has an operating weight of 29,300 lb.

Using a D-691 diesel engine rated at 134 net engine hp. at 1,550 rpm., the TD-20 can operate up to a maximum 45-deg. angle with positive lubrication to all engine working parts. *International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill.*

Enter 202 on Reader Card

Sand sizer

A NEW DEVICE FOR SIZING and desliming sand uses the wet cyclone to separate sand into desired size fractions. The Sandclone, a hydrocyclone type classifier, utilizes centrifugal force within a cone to speed separation.

Designed specifically for use in the fine aggregate industry, the device is particularly useful in the gradation of finer size fractions and in the separation of fine sands from slimes and clays. Fractions from 4 to 200 mesh are normally handled. A wide range of gradation requirements may be met with a minimum of adjustments. *Western Machinery Co., 650 Fifth St., San Francisco 7, Calif.*

Enter 203 on Reader Card

(Continued on page 146)

Hamilton • Loewy-Hydropress • Madsen • Pelton • Standard Steel Works

A view of the fully automatic assembly line at Pompton Lakes, N. J., where Du Pont Electric Blasting Caps, both regular and delay, are completely assembled by electronically-operated machinery.

Du Pont announces the first 100% mechanically assembled electric blasting caps

to assure you even more uniform, more reliable products

Here, in the only factory of its kind, Du Pont Electric Blasting Caps are now made on fully automatic machinery to give you the utmost in reliability, uniformity, and dependability.

Every step in the process, from automatically loading the shell (and inspecting it 3 times during loading alone), to applying the shielded shunt and paper band is electronically controlled.

This revolutionary approach means that every Du Pont Electric Blasting Cap—regular or delay—*must* meet our rigid standards at *every step* or it will be automatically rejected by one of the dozens of electronically controlled "watchmen."

This elimination of the human equation means that all Du Pont Electric Blasting Caps are even more uniform, more reliable, more dependable than ever before.

And you get all these benefits at NO INCREASE IN COST. Call your Du Pont representative or write to E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Delaware.

DU PONT BLASTING CAPS

Products of Du Pont Research

DU PONT

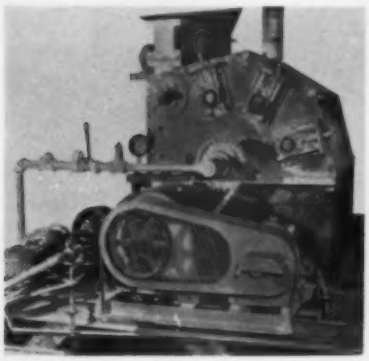
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

Enter 1263 on Reader Card

NEW MACHINERY

(Continued from page 144)



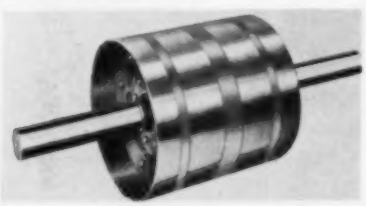
Densifier

A NEW METHOD AND EQUIPMENT for de-aerating and compacting, or densifying, fine powdered materials have been developed and patented. According to the patent-holder, the densifier makes possible the production of more salable, less dusty products with a uniformly higher density and reduces packaging materials and transportation costs. The densifier is designed so that finished density may be readily varied and reliably controlled at any level up to the maximum that can be achieved with the material.

The equipment has the advantages of a continuous process, including low power requirements and minimum of operating supervision. The process removes entrained or occluded air from fine, loose, powdered materials by the simultaneous application of vacuum filtration and mechanical compression to a regulated stream. *J. M. Huber Corp., P. O. Box 831, Borger, Texas.*

Enter 204 on Reader Card

Magnetic pulley



A NEW MAGNETIC PULLEY has been announced. Indox V ceramic permanent magnets energize the new pulley, producing a powerful magnetic field that removes troublesome tramp iron from fast-moving conveyor burdens. The radical pole design of the magnet assembly boosts holding efficiency without the disadvantages of electrical power supply, says the manufacturer.

Series "410" permanent magnet pulleys—and Series "710" for deeper conveyor burdens—are available in standard widths from 12 in. up, and in diameters of 12, 15, 18, 20 and 24 in. (larger sizes on request). *Stearns Magnetic Products, 635 S. 28th St., Milwaukee 46, Wis.*

Enter 205 on Reader Card

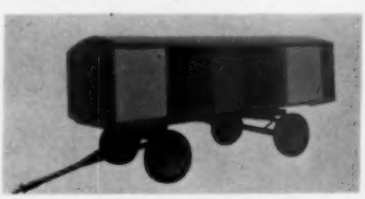
Unusual loader

AN UNUSUAL APPLICATION of a 16-in. "Hi-Type" swiveloader developed for the Honeymead Products Company, Mankato, Minn., has been announced. The installation, shown in the above photo, is unusual in that the loader moves along a 200-ft. loading dock to load box cars, compared with a normal application where the unit is anchored at a stationary point and the box cars are brought to it.

The loader is a standard model. It has been modified slightly for this installation by the addition of a 5 hp. motor which replaces the conventional 3 hp. motor. This modification was adopted to increase the belt speed from 2,100 to 2,900 fpm., insuring that the material being thrown would reach the extreme ends of 50 ft. box cars. The loader is mounted on a special frame, running on two rails—one along the loading dock, the other attached overhead to a supporting steel framework. *Stephens-Adamson Mfg. Co., Ridgeway Ave., Aurora, Ill.*

Enter 206 on Reader Card

Explosives magazine



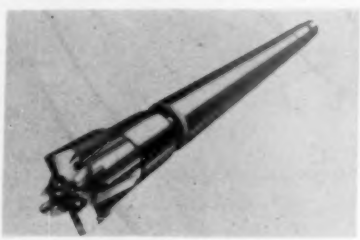
A PORTABLE EXPLOSIVES MAGAZINE that can be hauled by light truck or tractor to the job site to facilitate blast hole loading has been announced. Known as Model 800, the magazine has a capacity for more than the average daily requirements of explosives, detonating fuse and caps (8,000 to 10,000 lb.). Loading and unloading are simplified by five large doors, two of which are located on either side with one at rear.

An important feature of the 800 is the fifth-wheel type design of the front axle which assures complete maneuverability even in close quarters, according to the manufacturer. Arched tubular construction of front and rear axle provides ground clearance and strength necessary for travel over rough terrain.

The magazine is constructed of welded steel throughout and separated into two compartments. Sides and top are wood lined while the floor is covered with masonite. Overall body length is 14 ft., width is 6 ft., 4 in. and height is 46½ in. *Austin Powder Co., Cleveland 13, Ohio.*

Enter 207 on Reader Card

Percussion tool



A NEW PERCUSSION TOOL is said to make possible fast, economical drilling in hard rock formations that stop ordinary rotary drills, permitting operation in locations where cost factors formerly prevented profitable production. Called the "Rotatool," the new tool was developed for use with Schramm Rotadrills. It is simple in design, having only three moving parts. The tool has a heavier hammer and therefore produces greater fracturing action for faster penetration. Since the percussive action is completely contained within the tool, no power is lost through the drill pipe. A special bit equipped with six carbide tips is designed for maximum life with minimum wear, and can be reground on the job for repeated use.

Unrestricted air passages in the tool permit the full capacity of the air compressor to pass through the bit to clear the hole of cuttings or water. Because the tool is not affected by submersion, its drilling efficiency is equally high under water whether in quarry or well holes. *Schramm, Inc., 900 E. Virginia Ave., West Chester, Pa.*

Enter 208 on Reader Card

(Continued on page 148)

S-7 "Euc" Scrapers pay off
in gravel pit stripping and hauling

The versatility and fast production provided by Euclid S-7's led Gillissee Construction Company of Grand Rapids, Michigan, to invest in two of these 143 h.p. "Eucs" for hauling in their leased gravel pit.

With pusher assistance, the 7 yd. struck machines, which are sideboarded, load out almost 13 tons of sand and gravel mixture in half a minute for the 410′ haul to drive-over hopper. Return haul is 840′. As the pit is developed further, haul length will increase. Because of the current short haul and total production being limited by the 225 tons per hour capacity of present screening and crushing equipment, the scrapers make only 8 or 9 trips per hour, and have ample productive capacity to handle future plant expansion.

In addition to handling the sand and gravel at less cost than with dragline and trucks, Gillissee also uses these versatile scrapers for construction projects when needed.

To see how S-7 Scrapers may pay off for you, have your Euclid dealer give you facts and figures based on your earthmoving needs . . . he can show you why so many owners say ***Euclids are your best investment.***

EUCLID DIVISION GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

GM GENERAL MOTORS EUCLID

EUCLID EQUIPMENT

FOR MOVING EARTH, ROCK, COAL AND ORE

NEW MACHINERY

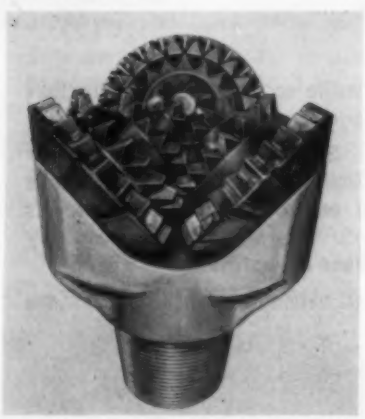
(Continued from page 146)

Industrial tires

THESE INDUSTRIAL TIRES, developed especially to meet critical needs in industry, are said to be particularly valuable for heavy duty and hazardous operations. Trailers up to 40 tons, equipped with these industrial tires for yard use, have established new performance standards, the manufacturer claims. These tires are said to outlast pneumatic tires two to six times. Mitco tires are now offered as standard or optional equipment by 41 original equipment manufacturers. *Mitchell Industrial Tire Co., Inc., P. O. Box 468, 1400 E. 40th St., Chattanooga, Tenn.*

Enter 209 on Reader Card

Air blast bits



AIR BLAST DRILLING with rotary bits, using techniques similar to those used in oil fields, is said to cut blast-hole drilling costs as much as 35 percent over conventional percussive drilling methods. Quarrymen using these methods find holes up to 12¼ in. are being run successfully in the hardest formations encountered, according to rotary bit manufacturers.

Penetration rates are controlled by bit tooth-design selection, weight (down-pressure on the bit), variations in rotational speed and the amount of air blast required to keep the hole bottom clean and to bring cuttings to surface away from cutters. The latter reduces tooth and bit body wear and assures each cutter a clean, full bite.

Two types of three cone "Air Blast" bits are available—standard Air Blast and jet Air Blast. In the standard model, illustrated, the air blast passes through bit center to flush the bottom of the hole. It circulates cuttings in and around the bit and outside the drill stem to the surface. In addition to the center blast, three external nozzles direct high pressure air jets toward the perimeter of the hole bottom in jet bit models. This jars cuttings loose and boosts them toward the surface when difficult hole-cleaning conditions are present or where hole depths are extreme. Models are available for soft, medium and hard formations. *Chicago Pneumatic Tool Co., 6 E. 44th St., New York 17, N.Y.*

Enter 210 on Reader Card

Side dump bucket

A SIDE DUMP BUCKET has been made available for Caterpillar's largest model Traxcavator, the No. 977.

The benefits of in-line loading include the ability to load without the continual turning demanded of standard tractor-shovels. The reduction in turning leads to higher production through lower cycle time, and lower maintenance due to decreased wear on track parts.

In addition, the No. 977 Traxcavator equipped with a side dump bucket requires less space to operate.

Installation and removal of the bucket are performed easily and quickly by utilizing the same pins, bolts and nuts which mount the standard bucket. No interference with the use of other Traxcavator attachments is caused when equipping the No. 977 with a side dumping bucket. *Caterpillar Tractor Co., Peoria, Ill.*

Enter 211 on Reader Card

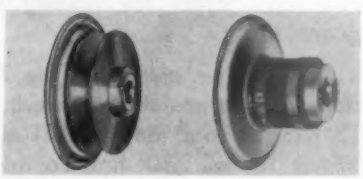
Load socket

A NEW DOUBLE WEDGE LOAD SOCKET is said to provide a quick and easy method of removing the load cable from the socket. Its design virtually eliminates all of the downtime and trouble formerly experienced in removing cable from the load socket, according to the manufacturer. With this new double wedge socket, one man, equipped with a hammer or small sledge, can easily release the cable.

These load sockets are available in manganese or heat treated alloy steel and are heavily reinforced on the bottom and other points to prevent wear and to provide maximum strength and long life. The grooves of the wedges are shaped so that the cable cannot be flattened or distorted. The new load sockets are available in a complete range of sizes to accommodate wire cable from 1⅝ through 3⅛ in., with single, double or triple eye connections. *Page Engineering Co., Clearing Post Office, Chicago 38, Ill.*

Enter 212 on Reader Card

Drives and couplings



FLEXIDYNE DRY FLUID DRIVES and couplings are now available in smaller units designed for ¼, ⅓, ½ and ¾-hp. motors at 1,750 rpm. According to the manufacturer, these fractional horsepower units, identified as 5D and 5C, incorporate all the advantages found in the larger sizes. They are recommended for use with light machines subject to jam-ups or to enable small motors to handle heavy starting loads.

Operating advantages of the smaller drives and couplings are said to include cushioned starting, 100 percent efficiency at full load and protection against overload. *Dodge Mfg. Corp., Mishawaka, Ind.*

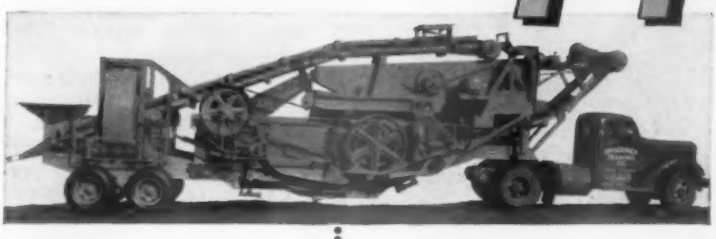
Enter 213 on Reader Card

(Continued on page 150)

Outproduces every machine in its class

77 DIAMOND

PORTABLE *Rotor-Lift* CRUSHING PLANT



The Diamond 77 provides:

- **Powerful crushing capacity ... 10" x 36" jaw crusher ... 36" x 22" or 36" x 24" roll crusher.**
- **Fast separation on a 4' x 12' vibrating screen.**
- **Belt conveyors 30" wide.**
- **Speedy, continuous movement of aggregate with the "line-flow" rotor lift principle.**

When you can turn out 240 tons per hour of 1-inch minus road aggregate in 70% crush, you're bound to make money. That's the record of an all-electric Diamond 77 on location in a Utah gravel pit. Screen, rotor lift and each conveyor is driven by its own electric motor for positive, trouble-free operation . . . continuous production.

The Diamond 77 outproduces every machine in its class. Ask any Diamond user. He'll tell you he gets high production at low cost consistently. Wherever the Diamond 77 works, hourly output of 300 to 400 tons of ¾" road gravel in 25 to 35% crush is repeatedly reported. Substantial tonnages are obtained even in hardest rock.

Record productions were Diamond engineered from the very beginning. Material flow is shorter . . . faster. Diamond's "Line Flo" Rotor-Lift insures speedy, continuous movement of aggregate . . . eliminates by-passes . . . bottlenecks. Oversize crushers, vibrating screen and extra wide belt conveyors give that extra capacity for greater output . . . smooth, dependable operation.

Add Diamond's complete portability . . . ready for the road without costly delay . . . readied for operation at new locations just as easily. And remember, Diamond 77 outproduces every machine in its class . . . in fact regularly exceeds its own rating. So before you decide on a crushing plant . . . see Diamond.

For full description, write for Catalog D-5415.

Diamond makes everything for the aggregate producer:

Jaw Crushers • Roll Crushers • Conveyors • Screens and Washers • Feeders and Bins • Portable and Stationary Crushing Plants for Rock and Gravel.

DIAMOND IRON WORKS

DIVISION

GOODMAN MANUFACTURING COMPANY

Halsted Street and 48th Place • Chicago 9, Illinois

Enter 1243 on Reader Card

NEW MACHINERY

(Continued from page 148)

Dump trailer

A NEW ALUMINUM frameless dump trailer is 1½ tons lighter than steel frameless dump trailers of the same capacity.

Built of 3/16-in. high-strength aluminum alloy, the trailer is available in a range of lengths from 14 to 24 ft. and capacities to meet buyers' specifications. The same strong aluminum alloy is used for the radius frame, suspension frame, body frame, and the wheels.

The trailer is equipped with a single 8-in. Teleramic hydraulic telescope hoist with a 25-ton load rating. Since all lift power is applied directly to the front of the load, the hoist has greater leverage. Weight saved in both the body and the hoist, together with the absence of a trailer frame, make bigger permissible payloads possible. *Anthony Co., Streator, Ill.*

Enter 228 on Reader Card

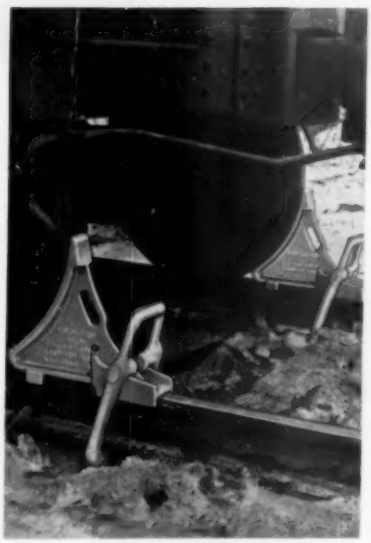
Tractor testing equipment

EQUIPMENT PROVIDING for checking power characteristics of tractors and other off-highway equipment without removing the engine from the chassis, and for dynamometer run-in and test of basic engines and power units was given its introductory showing at a meeting of the National Standard Parts Association.

The universal tractor and engine dynamometer test equipment will cover the horsepower range of all popular tractor models powered with engines rated up to 450 hp. and developing up to 1,800 lb.-ft. torque at 1,000 rpm. at the power take-off, and all basic engines and power units with mechanical clutches or torque converters rated up to 700 hp., developing up to 2,600 lb.-ft. torque from 1,000 rpm. and weighing up to 24,000 lb. Mounting equipment and adapters make the use of the testing units a simple, fast procedure. *Clayton Mfg. Co., El Monte, Calif.*

Enter 229 on Reader Card

Wheel stop



A SAFETY DEVICE for industrial plants and switching yards is a portable car stop. The "Porta-Stop" wheel stop consists of a cast steel rail and wheel conforming block which can be carried by a convenient cast-in hand hole. This block portion of the wheel stop is positioned on the rail by use of twin clamp handles which join to form a loop about the block and rail.

Instant assembly or disassembly of the clamp is accomplished by revolving each of the two parts about 30 deg. One block can be used for all sizes of rail. Two sizes of clamps are available for rails up to 110 lb. and over the 110-lb. class.

One pair of wheel stop assemblies consists of two blocks and two pairs of identical half-clamps, and weighs 120 lb. *Calumet Steel Castings Corp., 1636 Summer St., Hammond, Ind.*

Enter 230 on Reader Card

Spray lubricant

PACKAGED IN 16-OZ. pushbutton aerosol containers, a wire rope spray lubricant is designed to provide a handy method of lubricating wire rope and cable. Protective applications of the lubricant penetrate to the rope core minimizing internal friction and increasing rope life up to 300 percent. It eliminates rust and corrosion of rope and cable and its nongumming qualities substantially reduce carryback of abrasive dirt and dust. *The Whitmore Mfg. Co., Cleveland, Ohio.*

Enter 231 on Reader Card

Head pulley

A SINGLE UNIT CONVEYOR DRIVE, incorporating the motor, gears and all moving parts within the head pulley drum, has recently been introduced into this country from Germany. Space, time and power savings result from the compact design of the Bauer Self-Driven Head Pulley. Overhead V-belt drives and all the supporting superstructures and maintenance catwalks are eliminated.

Maintenance is minimized. There is no need for V-belt adjustments and repairs; the completely enclosed motor with sealed bearings requires little service, the importer says.

The pulleys are activated by three-phase induction motors with high starting torque and low starting current, ranging from .15 to 15 hp. They come in all standard widths. *George von Opel Corp., 15 William St., New York 5, N.Y.*

Enter 232 on Reader Card

Tractor dozer

A 600 HP., 104,000-LB. working weight "Michigan" tractor dozer has been field-tested on the Illinois Tollway Project. Nearly 27 ft. long, 14 ft. wide and 11 ft. 8 in. high, the Model 480 has a top speed of 28 mph., both forward and reverse. It is powered by a 12-cyl. Cummins turbocharged diesel engine.

Company engineers made a series of tests on the unit as it push-loaded various makes and models of scrapers in different soils on the tollway project near Huntley. The manufacturer claims that loading sand up a three to five percent grade took less than a minute with the 480 push-loading. *Clark Equipment Co., Battle Creek, Michigan.*

Enter 233 on Reader Card

(Continued on page 152)

Roebling Presents

THE NEWEST CONCEPT IN WIRE ROPE

*Herringbone**

two ropes in one!

Here is a combination that has proved itself during three years of field testing. A welcome addition to Roebling's great line of wire ropes, Royal Blue *Herringbone* is both a regular lay and lang lay wire rope!

So, in one rope you have the greater flexibility and abrasion resistance of lang lay construction *plus* regular lay's superior stability under severe operating conditions.

Preformed Herringbone is made of two *pairs* of lang lay strands, and two strands of regular lay which separate the two pairs of lang lay—all of it made of Type 1105 rope wire.

For three years Herringbone has been used for general hoisting, holding and closing lines, shovel ropes, wagon scraper ropes and dragline ropes. Without reservation, its performance has been superior to that of any other rope used for the same jobs . . . even in the hands of inexperienced personnel! *Its proven capabilities clearly suggest its use for all jobs where steel core ropes are normally used.*

See your Roebling salesman for all the facts or write Wire Rope Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey. Roebling Herringbone, the two-in-one rope to meet the *doubly* stringent demands of today's economy.

*Reg. app. for

ROEBLING

Branch Offices in Principal Cities

Subsidiary of The Colorado Fuel and Iron Corporation

HERRINGBONE

WIRE ROPE

Enter 1246 on Reader Card

NEW MACHINERY

(Continued from page 150)

27-ton rear dump

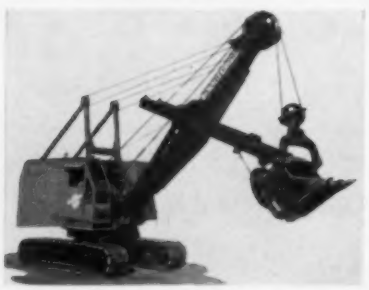
A REAR DUMP with 27-ton payload rating has been introduced. Model R-27 is equipped with either 300-hp. Detroit diesel or 335-hp. Cummins engine and Allison torqmatic drive. Top loaded speed is 34 mph.

The four-speed drive has automatic converter lockup to provide maximum economy when hauling at high speeds. A torqmatic brake for safer, economical braking on steep grades is standard equipment.

Both standard and optional quarry-type body are 18 cu. yd. struck capacity. Designed to work with big loading equipment, the R-27 has a low loading height of 9 ft. 10½ in. and a dumping angle of 61 deg. The all-welded tapered body is raised by twin double-acting two-stage hoists. *Euclid Division, General Motors Corp., Cleveland 17, Ohio.*

Enter 234 on Reader Card

Convertible shovel



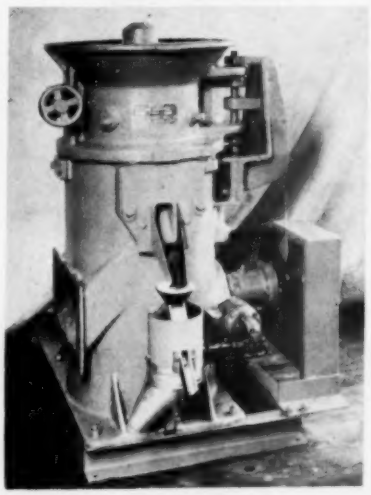
A NEW 3-CU. YD. SHOVEL which is convertible to crane, clamshell and dragline applications has been announced. Model 3600 employs a three-stage torque converter coupled to an engine equipped with a torque limiting tail shaft governor. This combination allows the machine to take advantage of the reserve power available through torque conversion while it restrains torque wherever it could be harmful to the excavator.

The new model contains 14 gears, which turn only when working to reduce power loss. This is accomplished by the "Powerflow" slide pinion arrangement which directs power straight to the operating function. Air controls are available for every operating function including steering.

Outstanding mobility between jobs and on the job is claimed by the manufacturer. A low overhead clearance of only 14 ft. 6½ in. is possible because the gantry folds down flat on the cab, while the boom stretches out straight ahead. The new unit has a "closed-face" box design tread which is self-cleaning. With this tread construction, plus direct power flow to the travel gears the 3600 will climb 30-percent grades over any terrain. *Manitowoc Engineering Corp., Manitowoc, Wis.*

Enter 235 on Reader Card

Bauxite crusher samplers



TWO COAL-CRUSHER-SAMPLERS are being utilized by an independent laboratory for the sampling of high-moisture bauxite for industrial use. Testing and sampling bauxite with an average moisture content of 15 percent, the units eliminate 28 hand operations.

The units operate on approximately 3 hp. The horizontal or pinion shaft rotates at approximately 400 rpm. in a clockwise direction. The vertical shaft and crushing nuts rotate clockwise at 160 rpm. Material fed into the hopper is gripped by the revolving coarse crushing nut and roughly crushed against the top of the liners. It then is gravity-passed to a revolving fine-toothed crushing disc and stationary liner where the crushing operation is completed.

Because of this gradual reduction process and the rotating, crushing operation, the sample is mixed thoroughly and is ejected a homogeneous, finely disintegrated and representative mixture of the material passed to it, including a correct proportion of impurities. The sample then is discharged uniformly at the periphery of the rotating disc, where the lab takes a 5, 10 or 15-percent sample. *Sturtevant Mill Co., 102 Clayton St., Boston 22, Massachusetts.*

Enter 236 on Reader Card

Full circle brake

A HEAVY-DUTY FULL CIRCLE BRAKE has been designed for off-the-road equipment. Named the "Hi-Torque," it is said to be the first hydraulic drum-type brake with 360-deg. expander tube actuation designed exclusively for large tractors, scrapers and earthmoving equipment.

The new brake operates with nearly constant lining pressures at all points around the drum area, at only one-half the usual maximum lining pressure. Built-in automatic adjustment assures constant braking efficiency throughout the life of the lining.

Made in most popular sizes, the brake is bolted as a single unit to the axle or axle housing of the vehicle and uses either the existing air supply (with B. F. Goodrich master cylinder) or hydraulic power from the central system. *B. F. Goodrich Aviation Products, Troy, Ohio.*

Enter 237 on Reader Card

Trolley lubricators

THE FREIMAN AUTOMATIC trolley lubricators have been completely redesigned. A built-in air cushion allows a bent trolley to pass without breaking the nozzle. The amount of grease or oil injected into each trolley wheel bearing is adjustable and fully automatic. Spacing of conveyor trolleys is no problem—they may be yards apart or as close as 6 in. Only two power sources are required, an airline and the moving conveyor. *Olsen Mfg. Co., 638 South Rochester Rd., Clawson, Michigan.*

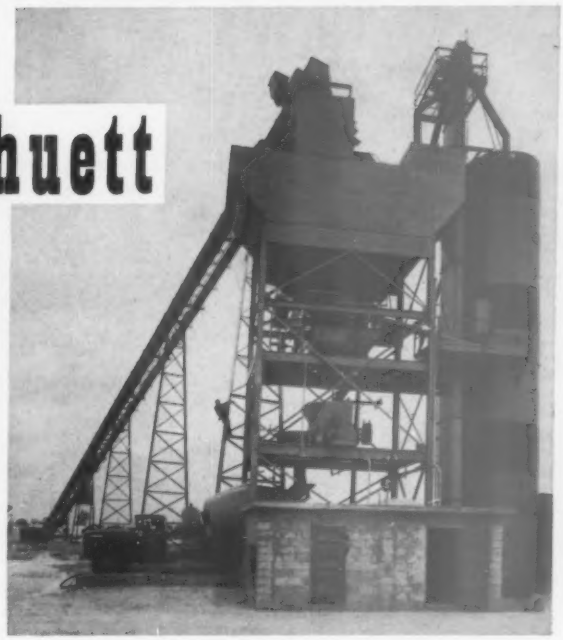
Enter 238 on Reader Card

END

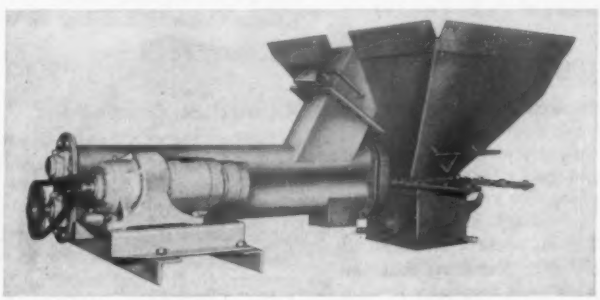
Oolite Builds Rite with Fanning-Schuett

With a fleet of 40 mixer trucks and two central mix concrete plants serving the fast-growing Miami area from Hollywood south to the Florida Keys, the Oolite Concrete Company effectively implements its well-known slogan "Build Rite . . . With Oolite". Oolite's North Dade and Bird Road central mix plants are the largest installations of their kind in Florida.

It is significant that Oolite, depending on top-quality products and customer service for continuing tremendous growth, has determined to use only the "newest and most modern equipment available on the American market". Thus, "Build Rite . . . With Oolite" is not an empty catchphrase, but a terse statement of conviction concerning the quality of Oolite products.



Oolite's North Dade plant (above) was designed and built by FANNING-SCHUETT. Precision control and dependable accuracy were the key design requirements in this 210 ton capacity central mix plant. It has a 3 cu. yd. batcher and the huge storage bin is divided into 7 compartments . . . 6 for aggregates and 1 for cement.



This Twin Screw Feeder is one of the features of Oolite's North Dade plant. Cement is fed into the top screw from the hopper and is carried forward to the end of the screw. There it is dropped into the bottom screws and the direction of cement flow is reversed. The screws are operated by a motor reducer through a chain drive. A motor brake allows instant stopping and double flighting of the bottom screw provides precision control, cutting down on over-runs or flooding. Twin screw feeders are made in 6"—8"—10" and 12" screw diameters. Single screw feeders are available as required.

FANNING-SCHUETT JOBS IN PROGRESS

FLORIDA LITH-I-BAR, INC., North Miami, Florida. —New storage bins and batchers as well as turbine mixers with special controls on cement feeding to insure quality concrete.

GORY ROOFING TILE MFG. CO., Hialeah, Florida. —The demand for roofing tile has necessitated the building of a complete new plant for this company at Boca Raton in which the latest type of batching and controls will be used to insure precision measurement of tile material.

FANNING-SCHUETT IS ALSO EMINENTLY QUALIFIED TO DESIGN AND BUILD PLANTS DEVOTED TO PRE-CAST CONCRETE PRODUCTS

FANNING-SCHUETT ENGINEERING COMPANY
4325-39 NORTH THIRD STREET PHILADELPHIA-PENNSYLVANIA

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MANUFACTURERS NEWS

Gardner-Denver executives take part in TV show

G. V. LEECE, president of Gardner-Denver Co., Quincy, Ill., points out the 10-year earnings and dividend growth of the company on Chicago television station WTTW's "Ticker Tape" program. Participating in a discussion of the growth and the company's role in the industries it serves are (left to right): Howell W. Murray, vice president and director of A. G. Becker & Co.; William J. Lawlor, Jr., partner of Hornblower & Weeks; E. V. Erickson, executive vice president of Gardner-Denver; G. V. Leece; and William N. Clark, financial editor of the *Chicago Tribune*, moderator of the program.

LeTourneau plans return to earthmoving field

R. G. LETOURNEAU, president of R. G. LeTourneau, Inc., Longview, Texas, has announced his firm's plans to return to production of earthmoving equipment. Mr. LeTourneau (pictured with the firm's newly developed "electric wheel") said, "We might start out with a 25 or 30-ton scraper in the $40,000 to $50,000 class and another with a capacity about three times that great in the $100,000 class." He added, however, "It would be guessing to talk very much about what our future machines will be, or what they will cost, until we have begun work in designing and developing them."

It was Westinghouse Air Brake Co. which brought out LeTourneau's earthmoving business five years ago, setting up a new subsidiary known as LeTourneau-Westinghouse Co. Included in the sale was a provision that the original LeTourneau company remain out of the earthmoving field for the five-year period which ended May 1.

Chief result of the five-year absence has been development of the electric wheel power system which LeTourneau developed for its non-earthmoving machines, and which the company now plans to introduce to earthmoving equipment.

Thorn named sales manager

GEORGE THORN has been appointed sales manager of the belting division of the Boston Woven Hose & Rubber Co., Div. of American Biltrite Rubber Co., Boston, Mass. In his new position, Mr. Thorn will direct the sales activity of the flat belt and V-belt departments.

Kenworth purchases Dart Truck Company

KENWORTH MOTOR TRUCK DIVISION of Pacific Car and Foundry Co., Seattle, Wash., has completed negotiations to purchase substantially all of the assets of the Dart Truck Co., Kansas City, Mo. Dart is a wholly owned subsidiary of the Carlisle Corp., Carlisle, Pa. The newly formed KW-Dart Truck Company has announced plans to construct a new manufacturing and administrative building in Kansas City. Upon completion of the plant, Kenworth will move only its rock and ore mover production there. All other Kenworth truck production will remain on the West Coast.

R. D. O'Brien, who has been named president of the company, will continue in his position as vice president and general manager of Kenworth Motor Truck Co. Carrol J. Warrell, vice president and general manager of the Dart Truck Co., will continue in that position with the KW-Dart Truck Co. Personnel and staff of Dart at Kansas City will continue on with the new organization.

Richardson promotions

THREE EXECUTIVE PROMOTIONS have been announced by Richardson Scale Co., Clifton, N.J. John K. Rudd, chief applications engineer since 1955, has been named manager of the custom products division. Mr. Rudd will be responsible for the handling of new or special customer requests. William R. Runo, formerly materials testing engineer, has been appointed manager of the standard products division. Samuel M. Dix has been named manager of the resale products division.

Ellicott opens office

A BRANCH OFFICE of the Ellicott Machine Corp., Baltimore, Md., has been opened at 525 Market St., San Francisco, Calif., according to an announcement by Allan W. Mund, president. Charles M. Romanowitz, formerly director of sales for the Yuba Mfg. Co., has been placed in charge of the sales office. Engineering and field service on dredges will be offered.

(Continued on page 156)

Hard Surfacing Semi-Automatically with WEAR-O-MATIC Yields Big Production Dividends for Custom Shop

The 5½ yard bucket shown above is being built up with Wear-O-Matic Nickel Manganese. This is a vertical weld on one of the grizzlies in the bucket. Over this will be deposited one pass of Wear-O-Matic 15. Perry Westlake has cut in half the time required on a job like this by using the Wear-O-Matic process.

Perry Westlake, Owner, Westlake Service, Burgettstown, Pennsylvania, does his best work while other men sleep. His custom hard surfacing of equipment must be done between shut down time at night and start up time next morning. This rigorous schedule has been the downfall of many contract weldors. Westlake solved this problem with the new Wear-O-Matic Semi-Automatic Hard Surfacing Process. "It would take an additional gasoline driven DC welding machine and another trained hard surfacing weldor to turn out the production we now get using the Wear-O-Matic process," says Perry.

Easier, continuous welding at faster speeds; quicker set up time per job; simpler wire change over and longer wearing alloy deposits have increased the efficiency of Westlake's entire operation.

A complete range of build-up and hard surfacing alloys packed in convenient 100 pound Payoffpaks provides longer wearing deposits for all hard surfacing requirements. The low initial cost of the Wear-O-Matic process makes the change over to semi-automatic hard surfacing feasible for every maintenance shop.

Your weldors will like the ease and convenience of the Wear-O-Matic process and you'll like the increased production. Write for Bulletin HS-134, Alloy Rods Company, P. O. Box 1828, York, Penna.

Alloy Rods Company

YORK, PENNSYLVANIA • EL SEGUNDO, CALIFORNIA

Alloy Rods Co.

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MANUFACTURERS NEWS

(Continued from page 154)

D. E. Newton

Made Wemco product manager

DOUGLAS E. NEWTON has been appointed to the post of product manager with Western Machinery Co., San Francisco, Calif. Mr. Newton, a graduate of the Colorado School of Mines, will specialize in applications involving flotation, classification, conditioning and other processing.

Also announced was the appointment of Albert B. Chavez as resident sales engineer for the international department of the company, serving Mexico and Central America. He will headquarter in El Paso, Texas.

Weber and Baerbalck form Cindaco, Inc.

JOHN H. WEBER AND WALTER W. BAERBALCK have announced the formation of Cindaco, Inc., Dayton, Ohio, to supply engineered plant equipment and supplies for sand, gravel, rock products and bulk materials handling operations.

Mr. Weber formerly was a vice president of Bode-Finn Co., equipment distributors, assigned to the Dayton area for more than nine years. For the past six years Mr. Baerbalck has been operating W. W. Baerbalck & Associates, Dayton, manufacturers representatives for electrical and mechanical equipment. C. Dale Walker, associated with the Jackson, Ohio, office of Bode-Finn Co. for 18 years, also has joined the company.

R. J. Plass made chairman of air pollution committee

R. J. PLASS has been elected chairman of the Air Pollution Control Association's electrostatic precipitation group, formed "to establish and promote acceptance of technical standards for industrial electrostatic precipitation equipment." Mr. Plass, industry engineer for the cement plant operations of Western Precipitation Corp., Los Angeles, Calif., has served the Association for many years by assisting in the development and adoption of engineering standards, guarantees and tests to aid the APCA in its program of air pollution control.

Chain Belt Co. expands Shafer Bearing Division

THE SHAFER BEARING DIVISION of Chain Belt Co., Milwaukee, Wis., has begun operations in a new million dollar addition to its plant in Downers Grove, Ill. The 88,000-sq. ft. addition includes a general office, machine shop, grinding and heat-treating department.

Chemical firm changes name

STOCKHOLDERS OF Allied Chemical & Dye Corp., New York, N.Y., have voted to change the firm's name to Allied Chemical Corporation. This was done to reflect the broad nature of the company's position in the chemical industry and not single out a particular division or field of activity.

(Continued on opposite page)

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___Asphalt Mixing Plants
___Bagging Machines
___Bags
___Barges
___Belting, Conveyor Elevator, Power Transmission
___Belting, V-type
___Belt Repair Equipment
___Bin Level Indicators
___Bins and Batching Equipment
___Bits
___Blasting Supplies
___Bodies, Trailer
___Buckets
___Bulldozers
___Cars, Industrial
___Classifiers
___Clutches
___Coal Pulverizing Equipment
___Concentrating Tables
___Conveyors
___Crushers
___Coolers
___Cranes
___Derricks
___Dewatering Equipment, Sand
___Diesel Engines
___Dragline Cableway Excavators
___Draglines
___Dredge Pumps
___Drilling Accessories
___Drills
___Dryers
___Dump Bodies
___Dust Collecting Equipment & Supplies
___Electric Motors
___Engineering Service Consulting and Designing
___Explosives & Dynamite
___Fans and Blowers
___Feeders
___Fifth Wheel Heavy Duty Special
___Flotation Equipment
___Front End Loaders
___Gasoline Engines
___Gear Reducers
___Generator Sets
___Grinding Media
___Gypsum Plant Machinery
___Hard Surfacing Materials
___Hoists
___Hoppers
___Kilns: Rotary, Shaft, Vertical
___Locomotives
___Lubricants
___Magnetic Separators
___Mills
___Pipe
___Pumps
___Scales
___Screen Cloth
___Screens
___Scrubbers: Crushed Stone, Gravel
___Shovels, Power
___Speed Reducers
___Tanks, Storage
___Tires and Tubes
___Torque Convertors
___Tractor Shovels
___Tractors
___Trailer Dump Bodies
___Trucks, Bulk Cement
___Trucks, Industrial
___Trucks, Mixer Body
___Trucks, Motor
___Valves
___Vibrators
___Welding and Cutting Equipment
___Winches
___Wire Cloth
___Wire Rope

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The principal rock product(s) manufactured by my company is/are indicated "1", "2", "3", in order of importance below.
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___Slag
___Cement
___Lime
___Gypsum
___Ready Mix Concrete
___Concrete Products Type_____
Other nonmetallic mineral (What?)_____
All above information is strictly confidential to be used to guide the manufacturers in supplying proper information.

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FILL IN—TEAR OUT—MAIL NOW! *BUYER RESEARCH SERVICE DEPARTMENT:* ROCK PRODUCTS 79 W. Monroe St. Chicago 3, Illinois

Made Atlas Copco director

APPOINTMENT OF J. Allan Perham as director of the Atlas Copco companies in the United States has been announced. Mr. Perham, who joined the company in 1949 as Canadian sales manager, has been serving as its sales director in Sweden.

Name Reo sales manager

APPOINTMENT OF George R. Collins as general sales manager of the Reo Division, The White Motor Co., Lansing, Mich., has been announced. Mr. Collins, formerly assistant sales manager, succeeds Jack Adams who has resigned.

Case sales department formed for tractor line

FORMATION OF a separate department to handle sales of its expanding Utility wheel and crawler tractor line has been announced by J. I. Case Co., Racine, Wis. Named manager of the new sales operation is William J. Schlapman, formerly vice president in charge of sales with Wagner Iron Works, Milwaukee, Wis. W. H. Vogel has been made assistant sales manager.

Dorr-Oliver promotions

DORR-OLIVER INC., Stamford, Conn., has announced the election of William J. Fox as vice president for the field of technological growth and the appointment of Dr. Elliot J. Roberts as company technical advisor. Creation of these posts are the first steps of a research and development reorganization and realignment.

In his new post, Mr. Fox will administer all research and development activities and functions as well as those of the legal and patent department. He has held the posts of director of the legal and patent department and assistant general counsel since 1957.

Dr. Roberts, a graduate of Yale University, joined the company in 1930 as a research chemist and in 1941 was named director of research. In 1953, he became vice president for research, and since 1955 has been director of research and development.

FWD elects officers

ROBERT A. OLEN, president of the Four Wheel Drive Auto Co., Clintonville, Wis., since 1952, has been elected vice chairman of the board of directors and Maurice E. Ash has been elected president, according to an announcement by George E. Mallinckrodt, chairman of the board. Mr. Olen joined the company in 1934 after graduating from Lawrence College, Appleton, Wis. He has served as assistant general manager, general manager, vice president and president before being elected vice chairman. Mr. Ash, a graduate of Cornell University, has been serving as vice president of Paradynamics Inc., St. Louis, Mo.

James A. Driessen, who has been with the company since 1930, will continue in charge of company operations as executive vice president.

(Continued on following page)

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The new WILFLEY MODEL K Centrifugal Sand Pump embodies important mechanical improvements especially adapted to the handling of cement slurry and results in stepped-up production and substantial power savings. Individual engineering. Write for details.

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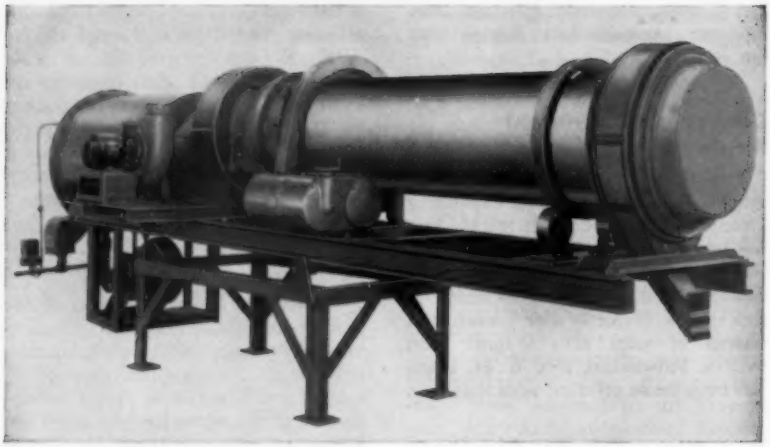
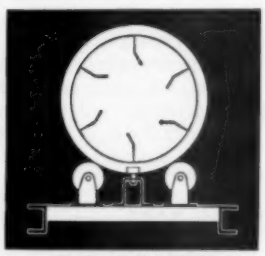


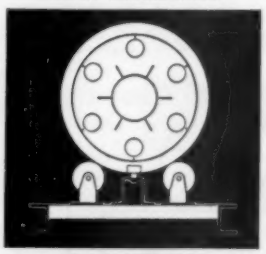
PILOT PLANT ROTARY DRYER

The Ruggles-Coles Pilot Plant Dryer is designed especially for laboratory use or for small capacity unit operations requiring a continuous or intermittent drying step. Each unit:

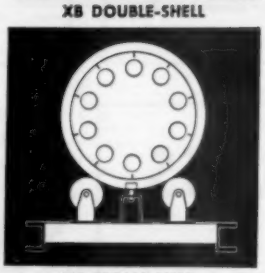
- Is mounted on a structural steel base.
- Has removable "knockers."
- Provides for easy changing of shell rotation speed or shell slope.
- Is available in stainless steel or other corrosion-resistant materials.
- Requires only fuel supply and power connections to be placed in operation.
- Is easily moved from place to place.



XH-XF SINGLE-SHELL



XB DOUBLE-SHELL



XC STEAM TUBE

It is available in three models:

(1) XH-XF single-shell, direct gas fired dryer. Arranged for either parallel or counter-flow operation. Bulletin AH-471.

(2) XB double-shell, indirect-heat, gas-fired dryer for drying without contamination. Volatiles removed with only limited dilution. Bulletin AH-472.

(3) XC steam-tube indirect heat dryer. Can be connected to any available steam supply or furnished with a 3-HP steam generator. Bulletin AH-473.

For complete information write Department 7.

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MANUFACTURERS NEWS

(Continued from preceding page)

Hyster regional managers

J. Greer D. Shaffer J. B. Hall R. W. Hill

A CHANGE in the structure of its industrial truck sales organization has been announced by Hyster Co., Portland, Ore. In the new structure, district sales areas have been consolidated into four geographical regions and personnel have been assigned to these areas under the title of regional managers. New regional managers and their respective regions are: John B. Hall, eastern regional manager; Jack Greer, midwest regional manager; Donald Shaffer, western regional manager; and Robert W. Hill, southern regional manager.

Fulton Bag becomes paper company division

FULTON BAG AND PRODUCTS CO., New Orleans, La., is being absorbed through a cash transaction as a division of West Virginia Pulp and Paper Co., New York, N.Y., according to an announcement by officials of the two companies.

David L. Luke, president of West Virginia Pulp and Paper Co., said the bag company would be merged as a division of the parent company as soon as legal arrangements are worked out.

The present management of Fulton Bag and Products, headed by Jason M. Elsas, president, will continue to direct its operations.

Kenneth Brown dies

KENNETH R. BROWN, a former vice president and director of Atlas Powder Co., Wilmington, Del., died March 18. He was 61 years old. Mr. Brown, a graduate of Swarthmore College, retired in 1956.

Dura-Buket representative

APPOINTMENT OF Robert J. Thompson as a sales representative for the Dura-Buket Division of National Oats Co., East St. Louis, Ill., has been announced. Mr. Thompson will handle sales in a territory between the Mississippi River and Rocky Mountains.

END

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502-16 Roto Louvre Dryer
705-24 Roto Louvre Dryer

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36" x 48" Buchanan Jaw Crusher
#60 Williams Hammermill
20" x 12" Jeffrey Hammermill
Raymond 3 Roll High Side Mill with Double Whizzer, Fan and Dust Collector

MISCELLANEOUS

20" x 9" Komarek Greaves Briquette Press
36" Gayco Air Classifier
78" Akins Spiral Duplex Classifier
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CONTRACTORS

Office
Chicago 26, Illinois
1820 Norwood Street
Sheldrake 3-1211

Plant
2809 Calumet Ave.
Hammond, Ind.
Westmore 2-8865

TWIN DRILL RIG

Cleveland-LeRoi Model T-286 drill rig (self-propelled). Has two 8' feed arms mounted with Cleveland D14 rock drill. This twin rig is mounted on an American DT34 Terratrac Crawler Tractor w/ Continental engine, extended axle, steel grouser track pads with hard rubber street pad inserts, lights, electric starting. This unit is in very good condition throughout .....$6200.00 Complete

6500 New Ingersoll-Rand thread type 2, 4 point, center hole, single, 2⅝" steel rock bits $650.00

1½" Walworth brass angle valves, 300# pressure globe valves. New and in perfect condition .....$10.00 ea.
6 or more $8.00 ea. F.O.B. Muncie, Ind.

IRVING SUPPLY COMPANY
R.R. 1 - Phone AT 2-7278
MUNCIE, INDIANA

SPECIALS

6'-5"x100' Kilns

DRYERS
6' x 60'

CRUSHERS
1—30" x 36", 24" x 30", 18" x 36", 15" x 30", 12" x 24" Jaw Crushers.
2—42" x 16" Allis-Chalmers Crushing Rolls, rebuilt. 36" x 16 rebuilt Sturtevant rolls.
2—24" x 12" Rogers Iron Works Crushing Rolls, Rebuilt.
1—6", 10", 16", 20" McCully Superior Gyratory Crushers.
No. 3 up to No. 12 Gyratory Crushers.

BALL & TUBE MILLS
2—5½' x 20', 5' x 22', 6' x 22' & 7' x 24'.

MISCELLANEOUS
Bradley Mills.

We make new dryers and kilns.

Have you any machinery that you want to sell?

W. P. HEINEKEN, INC.
80 Broad St., N.Y. Tel. Wh. 4-4236

FOR SALE

ALLIS-CHALMERS BALL TUBE MILLS, 5'6"x 22' L, 150 HP.
ALLIS-CHALMERS 7'x24' COMPEB MILL, 450 HP, two-compartment.
MARCY ROD MILL, 4'x10', 75 HP.
RAYMOND PULVERIZER 66" dia., 6 roll.
BABCOCK & WILCOX Model E32 Coal Pulverizer, 75 HP.
ROTARY DRYER & KILNS: 8'x125', 9x30, 7x60, 6'x50', 4'6"x40', 4'x30', 3'x15'.
ROTARY COOLERS: 104"x30', 104"x70', Submerged Type, UNUSED.
KENNEDY VAN SAUN GYRATORY CRUSHER, #49 gearless, 100 HP.
INTENSIVE MIXERS, 3', 4', 6' dia.
PROPANE TANK: 30,000 gal., 20# W.P., ASME.
CEMENT PLANT 1,200,000 Bbl. yearly capacity with 4 De Roll Vertical Kilns.
CONCRETE PLANTS, 400 cu. yd., 150 cu. yd.

WE WILL PAY CASH FOR GOOD USED EQUIPMENT

PERRY EQUIPMENT CORP.
1418 N. 6th St. Phila. 22, Pa.
Poplar 3-3505

QUARRY EQUIPMENT
Cedarapids 2540 jaw crusher. Reconditioned.
Cedarapids 3030 double impeller. Rebuilt
Cedarapids 1036 roller bearing jaw crusher.
Cedarapids 2033 hammermill. Rebuilt.
Telsmith 24" cone crusher. Good.
Telsmith 36 FC, Gyrasphere crusher. Reconditioned.
Telsmith 13 B gyratory crusher.
Cedarapids 42" x 10' apron feeder. New
Robins 4' x 9' triple deck screen. Reconditioned
Cedarapids 4' x 12' double deck screen. Rebuilt.
New Holland 4' x 12' double deck screen. Rebuilt.
Pioneer 4' x 8' double deck screen. Rebuilt.
Smithco 24" x 60' portable belt conveyor.
27½ ton, single-compartment 8' x 12' bin.
60-ton, two-compartment, 8' x 18' storage bin with clam gates.
100-ton, two compartment, 13' x 23' bin.
Special bins to your specifications.
Conveyors—18"—24"—30"—36". Also conveyor belting.

SHOVELS AND CRANES
Lorain 820 2-yd. diesel shovel-crane.
Lorain 82 2-yd. diesel shovel.
P & H 855B-LC, 2-yd. diesel dragline.
Lorain 79-J 1½ yd. diesel dragline.
Lorain 79 1¼ yd. diesel shovel.
P&H 655B 1½ yd. diesel dragline.
Bucyrus-Erie 38B, 1½-yard diesel dragline. Rebuilt.
Lorain L-25J ¾-yd. Diesel Clam-Hoe.
Lorain L-41 ¾-yd. diesel backhoe
Link Belt LS-85 ¾-yard diesel shovel-drag.
Lima 34 Paymaster ¾-yard diesel shovel. Good.
Unit 1020 ¾-yard diesel powered shovel-crane.
Lorain TL25B ¾-yd. gas clam-crane.
Insley K-13 ½-yd. gas dragline. As is.
Koehring 304 ¾-yd. diesel shovel-hoe.
Koehring 304 ¾-yd. diesel backhoe.
2—Lorain MC-414 20-ton Moto-Cranes
Link Belt HC-90 25-ton truck crane.
Lorain MC-504W 25-ton Moto-crane.
Lorain MC-4 15-ton Moto-Crane.
Lorain TL-20 10-ton gas moto-crane.

TRACTORS, TRUCKS, SCRAPERS, ETC.
3—Euclid TS-18 twin engine scrapers.
4—Euclid TS-24 twin engine scrapers.
4—Euclid 18-yd. overhung engine scrapers
1—Euclid 15½-yd. six wheel scraper.
1—Euclid TC-12 twin engine tractor.
10—Euclid 22-ton rear dumps. Excellent.
2—Euclid 15-ton rear dumps. Excellent.
1—Mack LRS 15-ton rear dump.
1—Pullman S-600, 6 to 8 yard scraper.
1—Caterpillar DW-10 scraper.
1—International TD-14A tractor with PCU.
1—International TD18 with Bucyrus-Erie bulldozer blade. Excellent condition.
1—Euclid tractor with 3200 gallon water tank semitrailer.
1—Caterpillar D-7 with cable bulldozer blade.
1—Caterpillar D-4 Tractor only
1—Caterpillar D-7 with Ateo 10½-yd. scraper.
1—Austin Western diesel powered grader
1—International 300 tractor, with loader back hoe.
2—LaPlante choate 13½-yd. Cable scrapers.

SHOVEL ATTACHMENTS
Lorain 820, 2-yd., 23' boom, 21' stick.
Lorain 50, 1-yd., 21' boom, 17' stick.
Lorain 40, ¾-yd., 19' boom, 16' stick.
Lorain 30A, ½-yd., 16' boom, 13'4" stick.
Osgood 903, 2-yd., 24' boom, 20'6" stick.
P & H 855, 2-yd. 24' boom, 17'6" stick.

BACKHOE ATTACHMENTS
Lorain 40A, 18' boom, 7' stick, 28", 36" or 44" bucket.
Koehring 304, 19' boom, 5' stick.

DIESEL POWER UNITS
Cat. D7700, 74 H.P. at 1000 RPM. Rebuilt.
Cat. D8800, 88 H.P. at 1000 RPM
Cat. D13000, 128 H.P. at 1000 RPM. Rebuilt.
OMC Twin Diesel, rebuilt.
OMC 3631C, 3-cylinder. new.

AIR COMPRESSORS
105 cu. ft. Ingersoll-Rand gas portable.
135 cu. ft. Jaeger gas portable.
210 cu. ft. Gardner Denver gas portable.
500 cu. ft. Ingersoll-Rand, Waukesha power.
600 cu. ft. Gardner-Denver diesel portable.
630 cu. ft. Gardner-Denver two-stage stationary. Rebuilt.

L. B. SMITH, INC.
Camp Hill, Pa.
Phone Harrisburg REgent 7-3431

7—Euclid bottom dumps 43-FDT & 58-W.
16—Euclid 9 LDT center dump semi-trailers.
65 ton & 25 ton G. E. std. ga. locomotives.
Pioneer crushing plant 936 jaw & 3018 roll.
Iowa 10 x 36 port. primary crushing plant.
Pitmaster plant 10 x 16 jaw & 16 x 16 roll.
30 x 42 r. b. Pioneer jaw, new 1954.
1000 cfm compressor, 300 hp, 440 v.
B. E. 37-B shovel-dragline—CHEAP.
N. W. 80-D dragline, 8700 series $12,500
P & H 1055 shovel-crane-dragline, 2½ yd.
Three—American stiffleg derricks 836-30, 80' boom, 6 tons at 78' radius, 100 hp.
30 ton Lima & 25 Koehring truck cranes.
314 KW Cat. D-397 generator 3/60/440.
938 KVA G.M. diesel generator. 200 hp, 2400 v.
54" x 16' Stephens Adamson manganese feeder.
24" x 1000' Barber Greene truss conveyor.
8" portable dredge, ladder, cutter head.
Rex double pumpcrete model 200, 50 hp.
9470 ft. Aerial Tramway, 50 tph, 65 buckets.

Stanley B. Troyer Equipment Co.
Box 97, Phone 500, Crosby, Minnesota

COMPRESSORS:
Ingersoll Rand-1055 CFM, XRE, 440 volts.
Ingersoll Rand-1575 CFM, PRE2, 2200 volts.
Ingersoll Rand-1721 CFM, PRE2, 2200 volts.
Ingersoll Rand-2040 CFM, PRE2 2200 volts.
Ingersoll Rand-3864 CFM, PRE2, 2200 volts.
Ingersoll Rand-4150 CFM, PRE2, 2200 volts.

MODERN STONE CRUSHING PLANT: Complete with 25 x 40 roller bearing Jaw Crusher, two 36" and one 24" Cone Crushers, 4x8, 3 deck Screens, Belt Conveyors, Apron Feeders, Truck Scale, Magnetic Pulley, all motors, controls, with or without trucks and shovels.

CLASSIFIERS: 4—Wemco and 2—Akins 78" duplex spiral with tanks 36'6", all complete, new condition.

ROTARY KILNS & DRYERS: 4½' x 40 ft., 5' x 50 ft. and 8' x 40 ft. Rotary Kilns, all modern, gas fired, complete with all equipment, including instruments and controls. One 9 ft. x 120 ft., two 8 ft. x 125 ft. Two Ruggles Coles Dryers class XA18, 104" dia. x 65 ft., new condition. One Ruggles Coles class XH12, 80" x 60 ft., new 1955. One Ruggles Coles class XA, 5 ft. x 30 ft. One 6 ft. x 50 ft. Rotary steam Dryer and one 6 ft. x 50 ft. rotary Cooler. One kiln 10 ft. dia. x 210 ft., ¾" plate.

PULVERIZERS: Hardinge Conical Ball Mills—8 x 36", 8 x 48", 10 x 48", with 200, 250, and 350 synchronous motor. One 6'6" x 21 ft. Tube Mill, stone lined with or without synchro motor and controls.

JAW CRUSHERS: 10 x 15, 10 x 20, 12 x 24, 15 x 36, 24 x 36, 25 x 40, 30 x 42 and 40 x 42". One 18 x 30" and one 24 x 72" sectionalized for underground use.

CAR DUMPER: Link Belt standard gauge, 65 ft. table.

AIR SEPARATORS: Sturtevant 16 ft.

MINE HOISTS: One 10' dia., 10' face, double clutched drums, 1250 H.P., 1⅝" rope, 1200 FPM, complete with all controls, excellent condition. Other hoists 100 H.P. to 2500 H.P.

WE BUY AND SELL EQUIPMENT THROUGHOUT NORTH AND CENTRAL AMERICA

A. J. O'NEILL
Lansdowne Theatre Building
LANSDOWNE, PA.
Phila. Phones: Madison 3-8300-3-8301

EQUIPMENT FOR SALE
631 Page Elec. Dragline, 200', 8 yd.
9-W Bucyrus Erie Elec. Drag, 200', 8 yd.
723 Page Diesel Drag, 130', 10 yd.
2400 Lima Dragline, 110', 6 yd.
4500 Manitowoc Dragline, 120', 5 yd.
111-M Marion Dragline, 100', 4 yd.
1055 P&H Dragline, 80', 4 yd.
1201 Lima Dragline, 85', 3 yd.
1001 Lima Dragline, 85', 2½ yd.
170-B Bucyrus Erie 6½ yd. Elec. Shovel
150-B Bucyrus Erie 6 yd. Elec. Shovel
120-B Bucyrus Erie 4 yd. Elec. Shovel
1400 P&H 4 yd. Electric Shovel
54-B Bucyrus Erie 2½ yd. Shovel
802 Lima 2 yd. Standard Shovel
604 Lima 1½ yd. Standard Shovel
Unit 1020 ¾ yard Shovel
Smaller Shovels & Draglines available
600 Reich Heavy Truck Mounted Rotary Air Drill
750 Reich Heavy Truck Mounted Rotary Air Drill
Euclid Trucks—Rear & Bottom Dump
Dozers, Scrapers, Graders, Front End Loaders
Shovel, Drag, Backhoe Attachments
Buckets and Dippers

FRANK SWABB EQUIPMENT CO., INC.
313 Hazleton National Bank Bldg.
Hazleton, Pa. GLadstone 5-3658

FOR SALE
FELDSPAR GRINDING AND PROCESSING PLANT
Located in Rochester, New York—Railroad and Water shipping facilities on Genesee River. Yearly capacity about 20,000 tons. Public utilities at property. No manufacturing restrictions. Land 4,441 Acres, 11 buildings.

EQUIPMENT
Machine shop tools, office equipment, blowers, screens, bagging machine, electric motors for all drives.
4—Patterson tube mills, 2—6½ ft. x 16 ft. and 2—5½ ft. x 18 ft.
Screw, bucket and belt conveyors.
Crushers, A-C-10" x 24" fine reduction crusher.
A. C. crushing rolls, Taylor 12" x 24"—jaw crusher.
Transformers for 440 volt 60 cycle 3 phase service.
Labratory and misc. equipment.
About 400 tons crude feldspar on hand.
Price—$75,000.00
Land alone worth asking price.

Write, Wire or Phone for inspection appointment

ACME EQUIPMENT AND SUPPLY CO.
1637 Sherbrooke St. West Apt. 14
Montreal, Que. Canada
Phone Wellington 2-6335

COLLECTOR—Ducon Cyclone 11,000 CFM
CRUSHER—Walker-Elliott Fine Rotary Crusher
HAMMERMILL—S-6 Penna. 42" x 32"
ELEVATOR—90' Open Inclined with buckets between two strands of chain.
PUG MILL—Chambers 30" x 14'7"
GRIZZLY ROLLS—Steel Frame contains 6 live rollers 12" dia. x 36" long.
PAN CONVEYORS—24" x 18' - 30" x 33' - 36" x 54'
SCREEN—5' x 7' Rotex Sifter Model 421
SHOVELS—L77 Lorain 1½ yd. and L57 Lorain 1¼ yd. Both excellent
SEPARATOR—Dings Magnetic Cross Belt for granular materials.
MOTOR—200 HP, 875 RPM GE Slip Ring. Also 25 other motors 3 HP to 75 HP Squirrel Cage All 440/3/60

G. & W. H. CORSON, INC.
Plymouth Meeting, Pa.

1—#4 Champion Jaw Crusher 9" x 15"
2—#4½ Champion Jaw Crusher 10" x 20"
1—Allis-Chalmers Jaw Crusher, Blake Type 10" x 20"
1—Reliance Jaw Crusher 15" x 30"
1—36" x 20' Revolving Screen
1—36" x 11' Revolving Screen with Scrubber
1—30" x 14' Revolving Screen
1—3' x 5' Link-Belt Foundry Shakeout Screen
1—10" x 20" New Holland Hammer Mill NEW All-Steel & Manganese J. & H. Hammer Mills 5½" x 18"
2—NEW B-G 15" x 36' Bucket Elevators on chain with 10 H.P. new gear head motors
1—18" x 25' Portable Belt Conveyor

JOHNSON & HOEHLER, INC.
P. O. Box 152, Lansdowne, Pa.

Pioneer Portable Crawler Mounted Secondary Crushing Plant Model 54VA-54"x24" Rolls-4'x12'—3 Deck Screen Spare Parts and Extra Screen Cloths. Never Used. Cost Government $68,000 New. For Sale ½rd This Price.

CONCRETE SUPPLY COMPANY
1212 South 13th St., Louisville, Kentucky

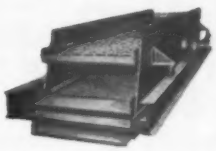
BONDED EQUIPMENT BARGAINS

NEW CURRENT MODELS IMMEDIATE SHIPMENT FROM OUR FACTORY
WRITE, WIRE OR PHONE FOR FREE CATALOG AND PRICES

NEW BONDED® HEAVY DUTY VIBRATING SCREENS

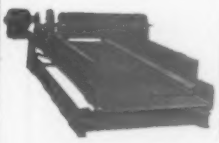
Model Number	No. of Decks	Screening Area	Sale Price
124A	1	2'x4'	$ 443.00
224A	2	2'x4'	472.00
126A	1	2'x6'	472.00
226A	2	2'x6'	501.00
136A	1	3'x6'	581.00
236A	2	3'x6'	688.00
336A	3	3'x6'	956.00
138A	1	3'x8'	675.00
238A	2	3'x8'	815.00
338A	3	3'x8'	996.00
336B	3	3'x6'	1620.00
436B	4	3'x6'	1685.00
138B	1	3'x8'	1510.00
238B	2	3'x8'	1620.00
338B	3	3'x8'	1735.00
248B	2	4'x8'	2310.00
348B	3	4'x8'	2440.00
2410B	2	4'x10'	2400.00
3410B	3	4'x10'	2550.00
2412B	2	4'x12'	2590.00
3412B	3	4'x12'	2970.00
4412B	4	4'x12'	3165.00

BUY WITH CONFIDENCE. REFERENCES ARE: Ohio National Bank, Columbus, Ohio; Dun & Bradstreet



HEAVY DUTY MODELS, TYPE B: Four bearing positive throw eccentric shaft; 3' x 6' to 5' x 14', 1 to 5 decks. WRITE FOR NEW 8-PAGE BULLETIN NO. 1087.

NEW BONDED® GENERAL DUTY VIBRATING SCREENS



More than 6000 Mines and Quarries have modernized with Bonded Equipment

GENERAL DUTY SCREENS, TYPE A: Eccentric weight mechanism, spring mounted, 1 to 3 decks, 2' x 4' to 3' x 8'. WRITE FOR NEW 8-PAGE BULLETIN NO. 1086.

For mineral, chemical and other industrial products. Fast, efficient and economical for cleaning, sizing, grading, dewatering. Made in all metals, including stainless steel. Enclosed models for hot materials or dust control. Bonded screens are built for any screening operation, wet or dry.

NEW BONDED® TROUGHING IDLER CONVEYOR BARGAINS

Remember, You Save Up To 50%

CONVEYOR PRICES INCLUDE BELTING

Complete Pre-Fab sections of 8" Jones & Laughlin Jr. I Beam Frame Conveyors quickly and easily joined together on the job. These beams are rolled with .20% Copper Content. Atmospheric exposure tests disclose that Junior Beams, with .20% Copper have as much as four times the resistance to corrosion as non-copper steels. Braced with structural angle, welded to frame for maximum rigidity. Equipped with 5" roll diameter idlers and return rolls, 20" diameter head pulley and 16" diameter tail pulley, mounted on 2¼" or 2⅞" diameter shaft.

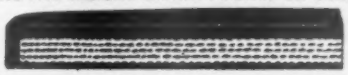
We take our loss on our stock of short length belting. You can save as much as 50% on BONDED CONVEYOR SPECIALS, with conveyor belting in two pieces. Belt is new 4-ply, 28 oz. duck ⅛" top rubber cover x 1/16" bottom cover Major grade belt and is Fresh Stock made by leading manufacturers.

A full line of accessories available, including carrying and return belt covers. WRITE FOR BULLETIN #1138.

Belt Width	Length of Conveyor	List Price	Sale Price	Add or Deduct Per Ft.
14"	25'	$1397	$ 722	
14"	50'	2222	1144	$16.84
14"	85'	3377	1733	
16"	20'	1262	636	
16"	45'	2137	1088	
16"	60'	2662	1359	18.04
16"	90'	3712	1900	
18"	25'	1477	794	
18"	45'	2217	1166	
18"	70'	3142	1648	
18"	85'	3697	1933	19.24
18"	100'	4252	2220	
18"	130'	5362	2797	
20"	25'	1517	828	
20"	60'	2882	1533	
20"	75'	3467	1838	20.37
20"	90'	4052	2145	
24"	25'	1590	898	
24"	45'	2430	1330	
24"	70'	3480	1875	
24"	100'	4740	2514	21.78
24"	120'	5580	2950	
24"	150'	6840	3603	
30"	50'	2911	1617	
30"	70'	3871	2119	24.75
30"	90'	4831	2614	
36"	25'	1818	1118	
36"	45'	2858	1678	
36"	60'	3638	2096	27.95
36"	100'	5718	3214	

NEW CONVEYOR BELTING SAVE UP TO 30%

WE PAY FREIGHT ON 200 POUNDS OR OVER



Major Brand: 12# to 15# Average Friction Pull. 800# to 1000# Average Cover Tensile.

Heavy Duty 4-ply, 28-oz. duck, 1/16" top rubber cover x 1/32" bottom rubber cover belting having high tensile strength, tough cotton duck, strong carcass and proper flexibility. For heavy boxes, bags and bulk materials. Troughs easily. Famous brands at deep cut prices. Fresh stocks.

Width	Ply	List Price Per Ft.	Sale Price Per Ft.
14"	4	$3.63	$2.53
16"	4	4.08	2.87
18"	4	4.51	3.19
20"	4	4.97	3.50
24"	4	5.85	4.16
30"	4	7.18	5.21
36"	4	8.51	6.18

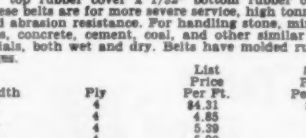
Major Bee Brand: 16# to 19# Average Friction Pull. 2500# to 3000# Average Cover Tensile. Skim coat between plies.

A high grade of heavy duty 4 and 5-ply, 28 oz. duck, 1/16" top rubber cover x 1/32" bottom rubber cover. These belts are for more severe service, high tonnages and abrasion resistance. For handling stone, mineral ores, concrete, cement, coal, and other similar materials, both wet and dry. Belts have molded rubber edges.

Width	Ply	List Price Per Ft.	Sale Price Per Ft.
14"	4	$4.31	$3.06
16"	4	4.85	3.46
18"	4	5.39	3.83
20"	4	5.90	4.27
24"	4	6.94	4.94
30"	4	8.53	6.07
36"	4	10.09	7.25
24"	5	8.14	5.78

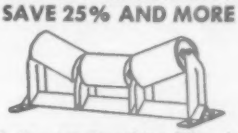
Other widths, plies, duck weights and cover thickness available at low prices. WRITE FOR FREE SAMPLE AND BULLETIN #1209.

NEW BONDED® FEEDERS



For high tonnage and controlled feed of Aggregate, Sand, Gravel, Crushed Stone, Clay products, Metallic Ores, Coal, Cinders and almost any other bulk material to Crushers, Screens, Conveyors, Mills and other process machinery. Feeder may be driven from Troughing Conveyors. All models available in abrasion resistant alloy steel plate. Capacities to 440 tons per hour. WRITE FOR BULLETIN #1211. Priced From $224.00

NEW IDLERS AND RETURN ROLLS SAVE 25% AND MORE



3-roll, 5" diameter Troughing Idlers for:

14" belt	$18.50	24" belt	$21.35
16" belt	19.35	30" belt	22.00
18" belt	20.50	36" belt	22.75
20" belt	20.75	48" belt	25.50

1-roll, 5" diameter Return Idlers for:

14" belt	$7.25	24" belt	$ 8.50
16" belt	7.50	30" belt	9.50
18" belt	8.00	36" belt	10.00
20" belt	8.25	48" belt	11.50

All steel. Interchangeable with other well-known makes. Furnished with easily replaceable prelubricated Sealed ball bearings. Also can be furnished with greasable type Alemite Fitted bearings at slight additional cost. Maintenance is negligible. Bonded Rubber Disc Impact Idlers priced from $61.00. WRITE FOR BULLETIN #1138.

NEW BONDED BUCKET ELEVATORS

Open or Enclosed, Vertical or Inclined Bucket Elevators with Continuous or Spaced Buckets mounted on Chain or Belting. Bonded's 19 standard models mean lower prices and you get a Custom Built Elevator at no extra cost.

There is a style of bucket for virtually every material or condition: wet or dry, lumpy or fine, granular, silvery, or pellet shapes, hot or chemically active. Prices listed below are for Vertical Enclosed Elevator. Other sizes, styles, and types available in both chain and belt type elevators, at equally low prices and will be quoted on request. A complete line of Continuous Steel, Salem Steel and Malleable Iron Buckets available in a wide variety of sizes, shapes, gauges and styles at low prices.

WRITE FOR BULLETIN #1203.

Model No.	Bucket Size Inches	First 20' (Discharge Ht.)	Add or Deduct Per Ft.
Style "A" Spaced Malleable Buckets On Belt			
B53A	5x3½	$1099.00	$20.50
B64A	6x4	1116.50	21.25
B85A	8x5	1311.50	27.25
B106A	10x6	1692.50	33.00
B127A	12x7	1854.50	37.25
Style "E" Continuous Steel Buckets On Chain			
C85E	8x5x 7¾	$1397.00	$31.25
C126E	12x6x11⅝	1599.00	34.25
C106E	10x8x11⅝	1604.00	34.75
C128E	12x8x11⅝	1634.00	35.50
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Iowa 53"x60" dbl. Impact hammermill
Telsmith 25B Gyratory Crusher
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Pangborn CH-2, exhaust blower, etc.
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Traylor 4' Model TY crusher. Numerous spare parts.
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Superior 300 HP 150 PSI, all Codes.
Littleford On-Off KWIK Package type
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Ransome Model 84S, 3 yd. tilting type
Smith 42Z, 4 yd. tilting type
Koehring 36S 2 yd. tilting type

TRANSIT MIXERS

Worthington 7 yd. High Discharge 1956 Mack Diesel
2 Int. LF-192-Blaw-Knox 6½ yd. 1953

CRUSHERS—KILNS—DRYERS

JAW: Acme 10x20, 15x36, 14x26, 14x28, 10x42, 16x32, 18x32, 25x40. Eagle 10x16, 20x36. Diamond 24x36". Cedar Rapids 10x20, 15x36, 20x36, 25x40. Farrell 10x20, 18x30, 14x36, 18x36, 36x48. Buchanan Type C 30x42, 36x42. Traylor 18x36, 24x36. Allis-Chalmers 30x18. Good Roads 10x30. Telsmith 18x32. Pioneer 30x42. Universal 18x24.
GYRATORY: Al-Chal 322, 6', 7½', 8, 9, 9K, 10, 16, 20, 30, Telsmith 8B, 25" Intercone,; Kennedy Van Saun 7, 19, 25½-S, 37½, 38; Traylor TY 1'6", 4' Type TS, TY 3', T2 3', TZ5'.
ROLL: Cedar Rapids 40x20. Pioneer 40x22. Pioneer 30x18. Telsmith 24x16. Universal 40x24, 18x30.
HAMMERMILL: Jeffrey Type BS 24x20, Type B 36x24, 36x36, 36x42, Eagle 24x24, Stedman 24x36, 36", 42". Cedar-Rapids 30-50, 30x33.
BALL MILL: Hardinge conical 10'x48", 8'x48", 8'x36", complete, motors, spare parts.
TUBE MILLS: Semidih 6'6"x21', 5½x29'.
ROD MILL: Marcy 3'x8' center discharge Marcy 3'x6' Denver 3'x8' center discharge
AUTOCLAVES: J&C 6'6" Quick Acting; 6'x50' bolted.
CONE: Symons 20", 2', 3' Telsmith 28".
KILNS: 4'x42', 5'x36', 6'x50'6", 6'4"x45', 6'x72' Vulcan 8x100, 10'6"x105', 8'x134', 6'x90', 6'x72'.
DRYERS: 6'x60', 6'x72', 5'x24', 4'6"x32', 3'6"x20', 6'x30'.
COMPEB MILLS: A-C 7'x24' Patterson 7x18.

CRUSHING PLANTS

Austin-Western Mdl. 1018 Port. Complete 10x36 jaw crusher Diesel powered. New 1955
Diamond 77, new 1956, 10x36 jaw crusher, roll crusher, complete Portable.
Pioneer Port. 10x24 jaw crusher,24x16 roll crusher, complete Diesel.
Cedar Rapids 20x36 jaw crusher Cat. D8800 Diesel power, 40x22 triple roll crusher.
C-R 2540 Prim. Port. Diesel
Eagle washing plant, classifier sand screws, screen.
C-R Primary Port. 22x36 Jaw. Diesel.
C-R WASH-ALL Screening-washing. Complete.
Eagle 36x25" single screwspiral flighis washer classifier dehydrator

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Johnson 400 yd 5 aggr. 1500 bbls. cement batch 5000 bbl. silo 3-2 yd mixers
Johnson automatic batch 10,000 bbls. cement storage 3-2 yd mixers; screening equipment.
Johnson TY 228 2 compt. agg. w/TY1320 cement unit
Blaw-Knox 100 ton 3 compt. aggregate bin
Blaw-Knox BCPC 600 bbl cement silo
B-K BCPC 400 bbl High cement bin 400 bbl silo.
Blaw-Knox BCPC 300 bbl cement bin
Auto-Crete port. batching plant, self contained, elec. up to 150 yds per day; one man operation.
Fuller Type U200 rotary vacuum pump 27".
Fuller Type V-70 rotary vacuum pump 25".
Fuller 10" air slide cement system.
Butler 150 ton 3 compt. aggr. bin w/weighbatcher.
Pre-Mix 150 ton 4 compt. 3 aggr. 1 cement; ground cement silo 2 yd concrete mixer. New 1955.
Rex 160, 190, 300 Pumpcretes.
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Tampo 80 cpd. trailer mounted Port. Concrete Plant.

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Morris 16"x18" Diesel. Pontoon mounted.
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1—Hardinge 5' x 10' Rod Mill
2—54" x 24" double roll Crushers
1—Symons 30" Impact Crusher

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4—Tyler Hummer 4' x 10', 3' x 5' Vibrating Screens
5—Link Belt, Allis Chalmers 3' x 8' Screens
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2—42" Apron Conveyors 65' long
2—84" Apron Belt Conveyors 20' long
1—48" Troughing Belt Conveyor 25'
15—24" Troughing Belt Conveyors 18' to 150'
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CRUSHERS: 1036, 2036, 3042, 3642, 4240, 4836 **JAW.** 10", 16", 18", 30" McCully. 2'4", 20" & 4' Traylor. 18", 24", 25", 36", 25B Telsmith. 12", 37½, 38½, 25½ KVS. 12K **GYR. ROLLS & CONES.**
DRYERS: 4x20, 5x40, 6x30, 7x60, 8x124.
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MILLS: 4x6, 4½x16, 6x15 Ball. 2½x7 Rod. Raymond 66", Williams Comet & Gnome Roll. 5x22 Tube
WASHERS: Hardinge 8' x 48". Eagle 24x18.
Wellman Seaver Morgan 2 drum 300 HP & Link Belt 200 HP Slope **HOISTS**
435 KW GMC Diesel Generator Set
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42" x 18' Apron Type
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Steel Stiff Leg Derrick, 100 foot Boom, 20 ton capacity with 3 drum electric hoist, 220-440 volt. Give full details.

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Lime plant in southwestern U.S. need man to assume full charge of plant operation. Must be fully experienced in all phases of lime production, grading, testing, shipping, marketing, etc. No sales or quarry experience necessary. Give experience, education, salary desired and attach snapshot to letter of application. Replies confidential. Box Q-16, Rock Products, 79 W. Monroe, Chicago 3, Ill.

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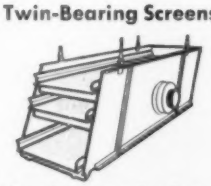

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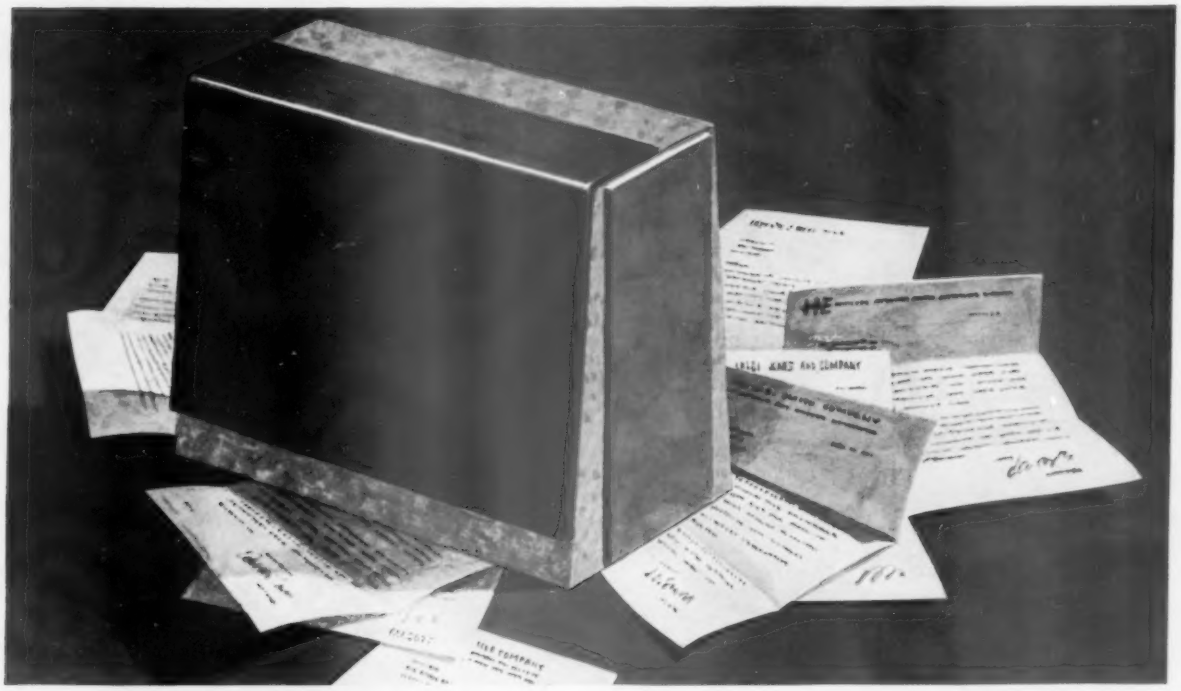

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#1	#2	Kaiser Unitab Kiln Liner	192 days
#2	#1	Brand "C" (basic)	85 days
#2	#2	Kaiser Unitab Kiln Liner	185 days

". . . choice of Kaiser Unitab Kiln Liners was based on following service comparison of liners:

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#2	#2	Brand "B" (basic)	108 days
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